

John R. Kasich, Governor Mary Taylor, Lt. Governor Craig W. Butler, Director

OCT -5 2017

Dr. Bradford S. White Home Avenue Redevelopment LLC 6397 Emerald Parkway Dublin, Ohio 43016

Ms. Veronica Morris
The City of Dayton
101 West Third Street
Dayton, Ohio, 45402

Re: Dayton Aviation Heritage Redevelopment

Covenant Approvals

Voluntary Action Program Montgomery County

557002779003

### **CERTIFIED MAIL**

Subject: Issuance of Covenant Not To Sue for the Dayton Aviation Heritage Redevelopment Project Property (16NFA647)

Dear Dr. White and Ms. Morris:

I am pleased to inform you that on \_\_\_\_\_\_\_, the Director of the Ohio Environmental Protection Agency ("Director") issued a Covenant Not To Sue ("CNS") to Home Avenue Redevelopment, LLC, and the City of Dayton for the Dayton Aviation Heritage Redevelopment Project property, located at 2701 Home Avenue, Dayton, Montgomery County, Ohio (the "Property"). The CNS was issued as Final Findings and Orders, pursuant to Ohio Revised Code ("ORC") Chapter 3746 and Ohio Administrative Code ("OAC") Chapter 3745-300.

The CNS states that based on the NFA Letter, and subject to all conditions set forth in these Findings and Orders, including but not limited to the terms and conditions of the O&M Agreement, Ohio EPA covenants not to sue and releases Home Avenue Redevelopment, LLC and the city of Dayton, and their respective agents, employees, members, shareholders, officers, directors, successors and assigns, and successors and assigns of the Property, from all civil liability to the State of Ohio to perform additional investigational and remedial activities. The covenant not to sue and release of liability applies to the Property that has undergone a Phase I or Phase II property assessment in compliance with ORC Chapter 3746 and OAC Chapter 3745-300, or has been the subject of remedial activities conducted under ORC Chapter 3746 and OAC Chapter 3745-300, to address a release of hazardous substances or petroleum, and the assessment or the remedial activities demonstrate or result in compliance with applicable standards.

Issuance of Covenant Not To Sue for the Dayton Aviation Heritage Redevelopment Project Property (16NFA647)
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Enclosed is a certified copy of the CNS and its exhibits for the recording of the documents in the same manner as a deed for the Property, as instructed by the CNS (see the "Conditions and Limitations" section). The recording of the Operation and Maintenance Agreement, as an exhibit of the CNS, need not include the attachments thereto, i.e., the Operation & Maintenance Plan, etc. The enclosed Affidavit should be presented to the county recorder's office staff to support the required recording. In addition, the enclosed letter to the county recorder's office should also be presented to the county recorder's office staff to explain the required recording. Remember to submit to Ohio EPA, after the recording, a complete copy of the CNS that shows the filing date stamp of the county recorder's office.

The complete copy of the stamped document should be sent to the attention of Angela Edwards, Records Management Officer, DERR, Ohio EPA Central Office, at the following address:

Ohio EPA – Division of Environmental Response and Revitalization Assessment Cleanup & Reuse Section – Voluntary Action Program 50 W. Town St., Suite 700 Columbus, OH 43215

Further, the Environmental Covenant - attached to the CNS as Exhibit 4 - must also be recorded in the same manner as a deed to the Property (see the "Conditions and Limitations" section of the CNS). Please record the Environmental Covenant just prior to and separate from the recording of the CNS and its remaining exhibits in the Property's chain of title. The CNS becomes effective on the date of the recording of the Environmental Covenant. Like the CNS recording, remember to submit to Ohio EPA (at the address listed above) a complete copy of the Environmental Covenant that shows the county recorder's date stamp. For questions on the recording of these documents, please contact Mr. Clint White at the Ohio EPA Legal Office at (614) 644-3037.

OAC 3745-300-03 authorizes Ohio EPA to charge for its actual costs that it may incur related to site-specific activities, such as the monitoring of compliance with the CNS and its Operation and Maintenance Agreement, including the review of the submitted reports. This Agency will send a separate correspondence to provide the number of the Voluntary Action Program ("VAP") account established for the Property and to ask you to verify the billing information.

This action of the Director is final and may be appealed to the Environmental Review Appeals Commission ("Commission") pursuant to ORC 3745.04. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Treasurer, State of Ohio," which the Commission, in its discretion, may reduce if by affidavit it is demonstrated that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the

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Director within three (3) days after the appeal is filed with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Commission at the following address: Environmental Review Appeals Commission, 77 South High Street, 17<sup>th</sup> Floor, Columbus, Ohio 43215.

Congratulations on the issuance of this CNS. Many persons within the agency, Home Avenue Redevelopment, LLC, the City of Dayton, and Amec Foster Wheeler, among others, worked hard to remove the environmental barriers associated with redeveloping this property. If you have any questions or concerns, feel free to contact me at (614) 644-2924 or via e-mail at <a href="martin.smith@epa.ohio.gov">martin.smith@epa.ohio.gov</a>.

Sincerely,

Lisa Shook

Acting Manager, Voluntary Action Program
Division of Environmental Response and Revitalization

### Enclosure

cc: Laura Funk, Certified Professional, Amec Foster Wheeler

ec: Joseph Smindak, DERR-SWDO

Clint White, Legal Office records@epa.ohio.gov



RE: Recording of Covenant Not To Sue; Environmental Covenant

Dear County Recorder's Office:

The attached document is a certified copy of a Voluntary Action Program (VAP) covenant not to sue (CNS) issued by the Director of the Ohio Environmental Protection Agency for the property identified in the CNS. The legal description of the property is provided in Exhibit 1.

The CNS was issued pursuant to Ohio Revised Code (ORC) § 3746.12. This certified copy of the CNS and its exhibits are presented to you for the recording of the documents in the same manner as a deed to the property, as instructed by the CNS (see the "Conditions and Limitations" section of CNS), pursuant to ORC §§ 317.08 and 3746.14.

The affidavit attached to the CNS is presented to you to support the required recording. Please refer to the following property owners Home Avenue Redevelopment, LLC, and the city of Dayton and parcel numbers R72 00111 0003 through 0007 Dayton City Tax District when logging the recorded CNS in the County Recorder's Office records.

The environmental covenant attached to the CNS (Exhibit 4) must also be recorded in the same manner as a deed to the property (see the "Conditions and Limitations" section of the CNS) pursuant to ORC §§ 317.08 and 3746.14. Please record the environmental covenant -- just prior to and separate from the recording of the CNS and its remaining exhibits -- in the property's chain of title.

Thank you in advance for your assistance. Should you have any questions in this regard, please contact the Ohio EPA Legal Office at (614) 644-3037.

Sincerely

Clint White, Staff Attorney

Office of Legal Services

(614) 644-3037 or Clint.White@epa.ohio.gov

## TO BE RECORDED IN **DEED RECORDS**, PURSUANT TO ORC 317.08(A)

### **AFFIDAVIT**

STATE OF OHIO	)
COUNTY OF FRANKLIN	) ss:
appeared Tonya R. Lassiter, who that: (i) she is employed as a r Ohio Environmental Protection A this Affidavit on behalf of Ohio El copy of the Covenant Not to Sur Director, and entered in Heritage Redevelopment Project	otary Public in and for the State of Ohio, personally, being duly sworn according to law, deposes and says ecords management officer in the Legal Office of the gency ("Ohio EPA") and, as such, is authorized to sign PA; and (ii) the attached document is a true and correct of Director's Final Findings and Orders issued by the the Ohio EPA Director's Journal or regarding property known as Dayton Aviation of Property, located at 2701 Home Avenue, Dayton ther described in the attached Covenant Not to Sue.  Tonya R. Lassiter Records Management Officer Ohio EPA Legal Office
Sworn to and subscribed be this 5 day of day of	efore me, a Notary Public in and for the State of Ohio,
This instrument prepared by: Clint White, Attorney Ohio EPA Legal Office	State of Ohio  Permanent Commission  No expiration, R.C. 147.03
P.O. Box 1049	Manual A 1 A 1



Columbus, Ohio 43216-1049

DONALD L. VANTERPOOL, Attorney-At-Law NOTARY PUBLIC, STATE OF CHIO My Commission has no expiration date.

Section 147.03 R.C.

### **BEFORE THE**

## OHIO ENVIRONMENTAL PROTECTION AGENCY

In the matter of:

Home Avenue Redevelopment LLC 6397 Emerald Parkway Dublin, Ohio 43016

The City of Dayton 101 West Third Street Dayton, Ohio, 45402

Regarding property known as:

Dayton Aviation Heritage Redevelopment Project Property 2701 Home Avenue, Dayton, Ohio 45449 **Covenant Not to Sue** 

<u>Director's Final Findings</u> <u>and Orders</u>

I cardify this to be a true and accurate copy of the citinal documents as filed in the records of the Ohio Environmental Protection Agency.

Jone Lassifer Date: 10/5/17

Pursuant to Ohio Revised Code ("ORC") Chapter 3746 and Ohio Administrative Code ("OAC") Chapter 3745-300, the Director of the Ohio Environmental Protection Agency (the "Director") hereby makes the following Findings and issues the following Orders ("Findings and Orders").

## **FINDINGS**

1. A No Further Action Letter, No. 16NFA647 (the "NFA Letter"), was submitted on January 8, 2016 to the Director under the Voluntary Action Program on behalf of Home Avenue Redevelopment LLC and the City of Dayton (the "Volunteers"), by Laura Funk, a certified professional, No. CP286, as defined in ORC 3746.01(F) and OAC 3745-300-01(A) (the "Certified Professional").

- The Certified Professional issued the NFA Letter by her CP affidavit on December 1, 2015. The Certified Professional also submitted to the Director addenda to the NFA Letter, which were issued under CP affidavit on December 29, 2016 and April 11, 2017. For the purposes of these Findings and Orders, the term "NFA Letter" includes the addenda.
- The NFA Letter describes the investigational and remedial activities undertaken at the approximately 54.35-acre property, formerly known as the GM Delphi Home Avenue Facility, located at 2701 Home Avenue, Dayton, Montgomery County, Ohio (the "Property"). An exact legal description of the Property is attached hereto as Exhibit 1. A property location map is attached hereto as Exhibit 2. Based on information in the NFA Letter, the Property is owned by Home Avenue Redevelopment, LLC.
- The Certified Professional prepared pursuant to OAC 3745-300-13(J) an Executive Summary of the NFA Letter, which is attached hereto as Exhibit 3.

## Summary of the voluntary action for the Property

- Based upon the information in the NFA Letter, the Volunteers undertook the following investigational and remedial activities regarding the Property:
  - a. A Phase I Property Assessment pursuant to OAC 3745-300-06, to determine whether there is any reason to believe that a release of hazardous substances or petroleum has or may have occurred on or from the Property.
  - b. A Phase II Property Assessment pursuant to OAC 3745-300-07, including but not limited to investigations of identified areas and affected media at the Property, to assess environmental conditions related to releases of hazardous substances and/or petroleum.
  - c. A verification pursuant to OAC 3745-300-10 to determine that the urban setting designation for the Westview Project Area USD approved by the Director on October 22, 2012 applies to and remains protective for the Property.
  - d. Activity and use limitations, as described in a proposed Environmental Covenant pursuant to ORC 5301.80 to 5301.92, subject to execution by the Director and recording as described in these Findings and Orders. In general, the activity and use limitations will: i) limit the Property to commercial use, industrial use or combination of these uses; ii) prohibit the extraction and use of ground water for purposes other than monitoring or remediation; and iii) limit occupancy of any building on the eastern portion of the property until a remedy addressing vapor intrusion is in place and maintained as an engineering control or a demonstration made that

applicable vapor intrusion standards are met.

- e. Engineering controls, as described in an Operation and Maintenance ("O&M") Plan pursuant to OAC 3745-300-11 that provides for engineering control operation, maintenance, inspection, reporting and other requirements to ensure long-term protectiveness. The engineering controls consist of: i) sub-slab depressurization (SSD) systems installed in off-Property residences.
- f. Other remedial activities, conducted under OAC 3745-300-11 or other applicable law, including soil excavation and asbestos abatement, and a soil vapor extraction system was operated at the Property prior to commencing the voluntary action.
- g. A demonstration that the Property complies with applicable standards based on the remedial activities for the identified chemicals of concern ("COCs") in the identified areas at the Property and in affected media. The demonstration was made using: generic numerical standards and a property-specific risk assessment.
- 6. The Certified Professional has verified by affidavit that the voluntary action was conducted and the NFA Letter was issued for the Property in accordance with ORC Chapter 3746 and OAC Chapter 3745-300, that the Property is eligible for the Voluntary Action Program, and that the voluntary action was conducted in compliance with all applicable federal, state and local laws and regulations.
- 7. At the time that analyses were performed, TestAmerica Laboratories, Nashville, TN, STL/TestAmerica Laboratories, North Canton, OH, TestAmerica Laboratories, Dayton, OH, TestAmerica Laboratories, Knoxville, TN, and ALS Laboratory Group, Cincinnati, OH were certified laboratories, No(s). CL0033, CL0024, CL0018, CL0059, and CL0022, respectively, as defined in ORC 3746.01(E) and OAC 3745-300-01(A), whose services were used in support of the NFA Letter.
- 8. The Environmental Covenant will be recorded in the same manner as a deed to the Property with Montgomery County as described in the Environmental Covenant and Order No. 2 herein. A copy of the executed Environmental Covenant is attached hereto as Exhibit 4. The Environmental Covenant upon recording will:
  - Limit the Property to commercial or industrial land use, as those terms are defined in OAC 3745-300-08(C)(2) (effective May 26, 2016).
  - b. Prohibit the extraction or use of ground water underlying the Property for any purpose, potable or otherwise, except for investigation, monitoring or remediation of the ground water, or for dewatering in conjunction with construction or excavation activities or maintenance of subsurface utilities.

- c. Limit building occupancy of any building constructed on the portion of the Property described in Attachment 2 of the Environmental Covenant, with the exception of existing Buildings 1 through 5 and 17, which are located contiguously to form one structure and shown on Attachment 3 of the Environmental Covenant, after the recording date of this Environmental Covenant, either: (i) a remedy that eliminates indoor air vapor intrusion exposure to hazardous substances in soil or ground water in excess of applicable standards shall be installed, operated and maintained as an engineering control under an operation and maintenance agreement in accordance with a Covenant Not to Sue issued by the Director of Environmental Protection pursuant to ORC 3746.12; or (ii) a demonstration attested by a Certified Professional shall be made to Ohio EPA, that the Property complies with applicable standards for the vapor intrusion pathway.
- 9. Regarding the O&M Plan activities, Ohio EPA and Home Avenue Redevelopment, LLC have entered into an O&M Agreement, which incorporates by reference the O&M Plan and allows for O&M Plan modifications, in part to mitigate or eliminate human exposure to COCs from releases on or from the Property. The O&M Agreement is attached hereto as Exhibit 5 and incorporated by reference herein.
- 10. The Volunteers conducted the voluntary action under Ohio's Voluntary Action Program in accordance with the procedures established under the "Memorandum of Agreement Brownfield and Voluntary Action Program MOA Track" entered into between the United States Environmental Protection Agency, Region V, and Ohio EPA on July 31, 2001, as amended on July 24, 2004 and February 13, 2006, and superseded in November 2007 (collectively the "MOA"). The voluntary action was implemented under "VAP MOA Track" procedures.

## Applicable Standards

- 11. Based on the information contained in the NFA Letter and all conditions set forth in these Findings and Orders, the Property meets applicable standards contained in ORC Chapter 3746 and OAC Chapter 3745-300 for various uses including commercial and industrial land use and restricted ground water use. The applicable standards for the Property are those in effect when the NFA Letter was issued on December 1, 2015. The applicable standards, the methods of achieving compliance with the standards, and the associated points of compliance for the standards for each complete exposure pathway, are identified in the NFA Letter or by applicable law. The standards include one or more of the following:
  - Generic numerical standards determined in accordance with OAC 3745-300-08.
  - Property-specific risk assessment standards developed in accordance with OAC 3745-300-09.

- c. Background standards determined in accordance with ORC 3746.06(A) and OAC 3745-300-07(H).
- Standards for residential (potable) use of ground water underlying the Property, applied in accordance with ORC 3746.06(B) and OAC 3745-300-07(F).
- 12. Based on the remedies identified in this paragraph, the Property complies with applicable standards. Failure of one or more remedial activities may constitute noncompliance with applicable standards. The remedies include:
  - a. The activity and use limitations set forth in the Environmental Covenant attached hereto, which once recorded will limit the Property to commercial or industrial land use, prohibit the extraction or use of ground water, and limit building occupancy without further investigation or remedy.
  - b. The engineering controls and associated activities set forth in the O&M Plan and the O&M Agreement attached hereto, which mitigate exposure to COCs from volatilization from soil and ground water to indoor air.
- 13. Remedy changes may be undertaken or documented in accordance with OAC 3745-300-11. Documentation of new or revised remedies may be reviewed as an Ohio EPA public record. Any new or modified activity and use limitation would be established under an environmental covenant recorded in the same manner as a deed for the Property.
- 14. Pursuant to ORC 3746.12(A), the Director of Ohio EPA is authorized to issue a covenant not to sue for the Property through these Findings and Orders. Based on the NFA Letter and subject to all conditions set forth in these Findings and Orders, the remedial activities conducted for the Property are protective of public health and safety and the environment.

### **ORDERS**

#### Covenant

1. Based on the NFA Letter, and subject to all conditions set forth in these Findings and Orders, including but not limited to the terms and conditions of the O&M Agreement, Ohio EPA hereby covenants not to sue and releases Home Avenue Redevelopment, LLC and the City of Dayton, and their respective agents, employees, members, shareholders, officers, directors, successors and assigns, and successors and assigns of the Property, from all civil liability to the State of Ohio (the "State") to perform additional investigational and remedial activities. This covenant not to sue and release of liability ("Covenant") applies to the Property that has undergone a Phase I or Phase II property assessment in compliance with

ORC Chapter 3746 and OAC Chapter 3745-300 or has been the subject of remedial activities conducted under ORC Chapter 3746 and OAC Chapter 3745-300 to address a release of hazardous substances or petroleum, and the assessment or the remedial activities demonstrate or result in compliance with applicable standards.

### **Conditions and Limitations**

## Effectiveness of the Covenant- Recording of the Environmental Covenant

- 2. The Covenant provided in Order No. 1 herein shall become effective upon the date the Environmental Covenant is recorded in accordance with this Order. The Environmental Covenant shall be filed as a document separate from the filing required by Order No. 3 herein. Within thirty (30) days after the issuance of these Findings and Orders, Home Avenue Redevelopment, LLC or the City of Dayton shall:
  - a. File with the Montgomery County Recorder's Office for recording, in the same manner as a deed to the Property pursuant to ORC 3746.14 and 5301.88, the Environmental Covenant as executed and attached hereto as Exhibit 4. The document for recording may be an executed original or a copy of the same authenticated by Ohio EPA; and
  - b. Submit to Ohio EPA a copy of the recorded Environmental Covenant that shows the filing date stamp of the Montgomery County Recorder's Office or other reliable information that verifies the recording of the document in accordance with this Order. The submission shall include a cover letter that identifies "Recorded Environmental Covenant for Dayton Aviation Heritage Redevelopment Project Property, NFA Letter No. 16NFA647." The submission shall be delivered by U.S. mail or by other reliable means to the DERR Records Management Officer at Ohio EPA's Central Office, 50 West Town Street, P.O. Box 1049, Columbus, OH 43216-1049, or at records@epa.ohio.gov.

## Requirement to Record These Findings and Orders / Covenant Not to Sue

- Within thirty (30) days after the issuance of these Findings and Orders, Home Avenue Redevelopment, LLC or the City of Dayton shall:
  - a. File with Montgomery County Recorder's Office, for recording in the same manner as a deed to the Property pursuant to ORC 3746.14, a copy of these Findings and Orders, including Exhibits 1 (Legal Description), 2 (Property Location Map) and 3 (Executive Summary).
  - Submit to Ohio EPA a copy of the Findings and Orders that shows the filing date stamp of the Montgomery County Recorder's Office or other reliable

information that verifies the recording of the Findings and Orders in accordance with this Order. The submission shall include a cover letter that identifies "Recorded - Covenant Not to Sue for NFA Letter No. 16NFA647." The submission shall be delivered by U.S. mail or by other reliable means to the DERR Records Management Officer at Ohio EPA's Central Office, 50 West Town Street, P.O. Box 1049, Columbus, OH 43216-1049, or at records@epa.ohio.gov.

## O&M Agreement – Required Notification When Transfer Property or Assign Covenant

4. Pursuant to ORC 3746.12(A)(2) and the O&M Agreement, Home Avenue Redevelopment, LLC or Transferee under the Agreement, if any, shall notify the Director of each transfer or assignment of the Property or any portion of the Property or of the Covenant within fourteen days. The notice to Ohio EPA shall include a cover letter that identifies "Notice of Conveyance pursuant to ORC 3746.12(A)(2) - NFA Letter No. 16NFA647." The notice shall be delivered by U.S. mail or by other reliable means to the DERR Records Management Officer at Ohio EPA's Central Office, 50 West Town Street, P.O. Box 1049, Columbus, OH 43216-1049, or at <a href="mailto:records@epa.ohio.gov">records@epa.ohio.gov</a>.

## Covenant Revoked if Engineering Control Not Maintained or Reinstated

6. Pursuant to ORC 3746.12(A)(2)(c), if any engineering control, including but not limited to the residential vapor intrusion mitigation systems adjacent to the Property, is violated or is no longer in place and results in the remedy being no longer protective of public health or safety or the environment, and Home Avenue Redevelopment, LLC or other person has not reinstated the control within a reasonable time period as determined in accordance with the O&M Agreement, the Covenant is revoked.

## **Limits of Covenant**

- Pursuant to ORC 3746.12(B)(1), the Covenant shall remain in effect for as long as the Property continues to comply with the applicable standards upon which the Covenant is based, as referenced in these Findings and Orders.
  - a. Compliance with standards requires the effective performance of the remedial activities set forth in the O&M Plan, as applicable, and additional or changed remedies as documented in Ohio EPA's public record or in an instrument recorded in the same manner as a deed for the Property.
  - b. Upon a finding pursuant to ORC 3746.12(B)(2) that the Property or portion thereof no longer complies with applicable standards upon which issuance of the Covenant was based and receipt of the Director's notice of that fact and the requirements of ORC 3746.12(B)(3), the person(s) responsible for

- maintaining compliance with those standards shall receive an "opportunity to cure" the noncompliance.
- c. ORC 3746.12(B)(4) provides for revocation of the Covenant upon a Director's finding that the noncompliance has not been cured.
- Pursuant to ORC 3746.05, any use of the Property that does not comply with the
  institutional controls identified herein (i.e., the activity and use limitations contained
  in the Environmental Covenant), voids the Covenant on and after the date of the
  commencement of the noncomplying use.
- 9. The Covenant shall not apply to releases of hazardous substances or petroleum that occur after the issuance of the NFA Letter, including but not limited to, releases of asbestos that may occur from asbestos-containing materials remaining at the Property that were not abated or not required to be abated pursuant to OAC Chapter 3745-20.
- 10. The Covenant shall not apply:
  - a. To claims for natural resource damages the State may have pursuant to Sections 107 or 113 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), 42 U.S.C. 9607 and 9613, as amended.
  - b. To claims the State may have pursuant to Section 107 of CERCLA, 42 U.S.C. 9607, as amended, for costs other than those for damages to natural resources, provided that the State incurs those other costs as a result of an action by the United States Environmental Protection Agency.
  - c. As otherwise specifically provided in ORC Chapter 3746, including but not limited to obligations arising under other applicable laws and hazardous waste generator closure obligations for the accumulation areas at the Property under the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq., as amended, or ORC Chapter 3734, or the regulations adopted thereunder.
- 11. Nothing in the Covenant limits the authority of the Director to act under ORC 3734.13 and 3734.20 to 3734.23.
- 12. Nothing in the Covenant limits the authority of the Director to request that a civil action be brought pursuant to the ORC or common law of the State to recover the costs incurred by Ohio EPA for investigating or remediating a release or threatened release of hazardous substances or petroleum at or from the Property, when the Director determines that the release or threatened release poses an imminent and substantial threat to public health or safety or the environment.

13. Nothing in the Covenant shall be construed to limit or waive the Director's authority to revoke the Covenant in response to any of the circumstances for revocation of a covenant, as provided in ORC Chapter 3746 and OAC Chapter 3745-300.

## Ohio EPA Oversight and Access to Property

14. Pursuant to ORC 3746.21 or 3746.171 and the Environmental Covenant, and at reasonable times, upon proper identification, and stating the necessity and purpose as directed by applicable law, authorized representatives of the Director shall be granted access to the Property for the inspection or investigation purposes authorized under applicable law. Such purposes may include but are not limited to conducting an audit of the NFA letter, and determining whether the Property is being used in compliance with the activity and use limitations contained in the Environmental Covenant.

### Transfer

15. Pursuant to ORC 3746.14 and OAC 3745-300-13, the NFA Letter and the Covenant Not to Sue/Findings and Orders may be transferred to any person by assignment or in conjunction with the acquisition of title to the Property.

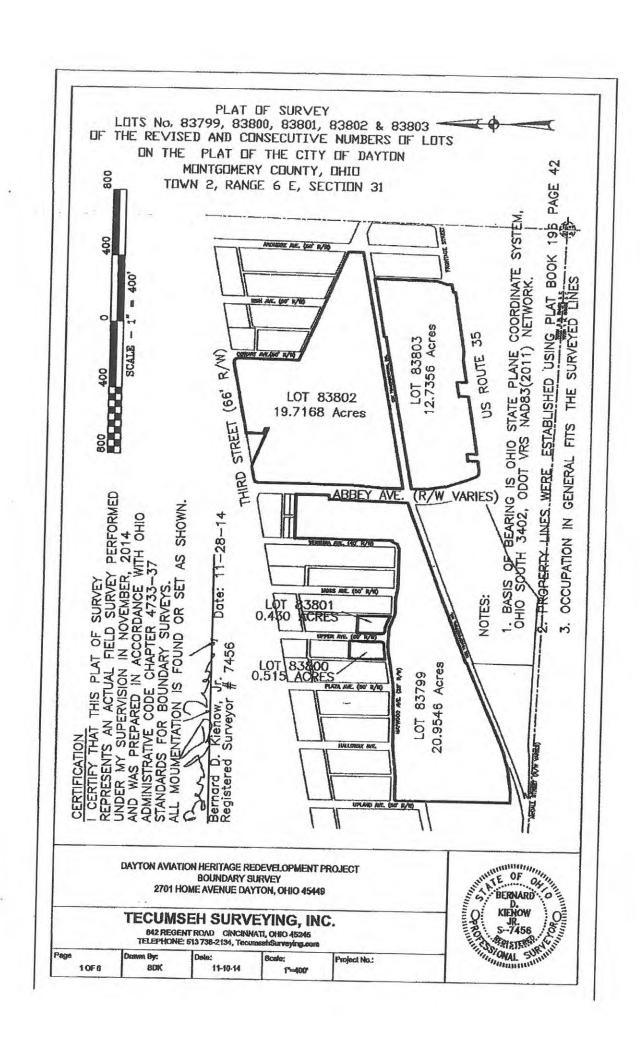
IT IS SO ORDERED:

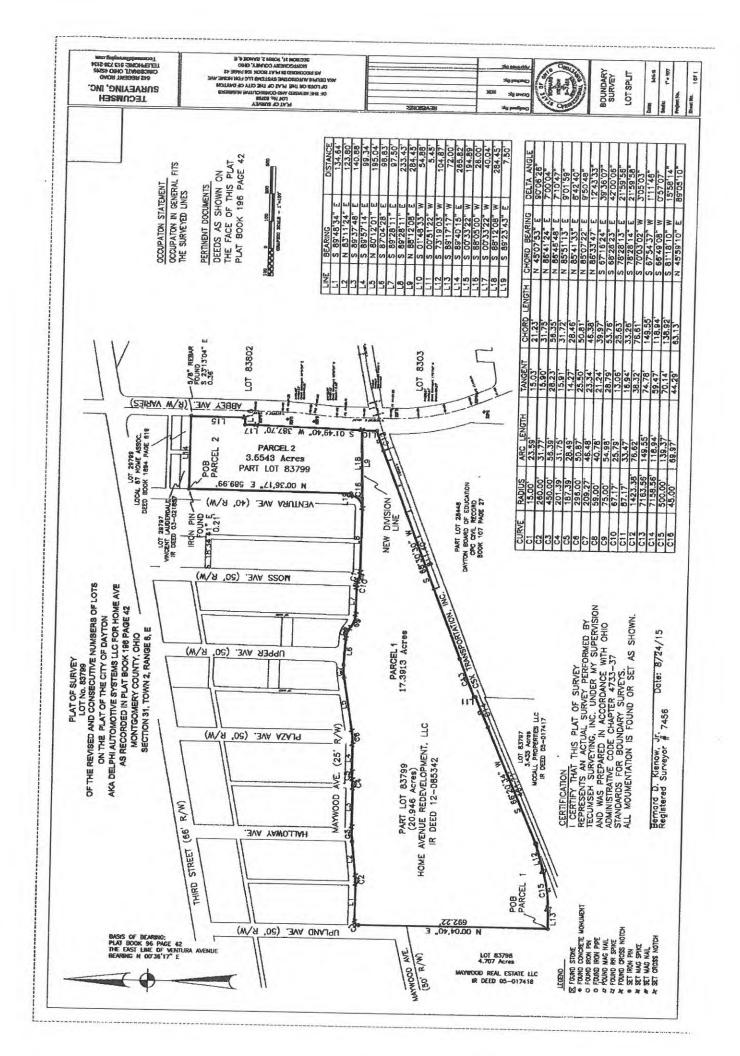
Craig W. Butler, Director

Ohio Environmental Protection Agency

Date

# Exhibit 1 Legal Description





### Legal Description Parcel 1

Situate in the City of Dayton, Section 31, Town 2, Range 6, E, Montgomery County, Ohio and being part of lot 83779 of the revised and consecutive number of lots on the Plat of the City of Dayton, AKA Delphi Automotive Systems LLC for Home Avenue as recorded in Plat Book 196 Page 42, as conveyed to Home Avenue Redevelopment LLC as recorded in IR Deed12-085342 and being more particularly described as follows:

Beginning at an iron pin with a cap stamped Woolperts found at the southwest corner of said lot 83799;

Thence with the west line of said lot 83799 and becoming the east right of way line of Upland Avenue (50' R/W), N 00°04'40" E for a distance of 692.22 feet to an iron pin set on the south right of way line of Maywood Avenue (25' R/W);

Thence along the south right of way line of said Maywood Avenue the following 19 courses;

- On a curve to the right, having a delta angle of 90°06'26", with a radius of 15.00 feet, for an arc length of 23.59 feet to a cross notch set, the chord for said curve bears N 45°07'53" E for a chord length of 21.23 feet;
- 2. S 89°48'34" E for a distance of 134.64 feet to a cross notch found;
- On a curve to the left, having a delta angle of 07°00'04", with a radius of 260.00 feet, for an arc length of 31.77 feet to a cross notch found, the chord for said curve bears N 86°41'24" E for a chord length of 31.75 feet;
- 4. N 83°11'24" E for a distance of 123.80 feet to an iron pin set;
- On a curve to the right, having a delta angle of 07°10'47", with a radius of 450.00 feet, for an arc length of 56.39 feet to a cross notch found, the chord for said curve bears N 86°46'48" E for a chord length of 56.35 feet;
- 6. S 89°37'48" E for a distance of 140.88 feet to a cross notch found;
- On a curve to the left, having a delta angle of 09°01'59", with a radius of 201.39 feet, for an arc length of 31.75 feet to a cross notch found, the chord for said curve bears N 85°51'13" E for a chord length of 31.72 feet;
- 8. With a reverse curve to the right, having a delta angle of 08°42'40", with a radius of 187.39 feet, for an arc length of 28.49 feet to a cross notch found, the chord for said curve bears N 85°41'33" E for a chord length of 28.46 feet;
- 9. S 89°57'14" E for a distance of 99.34 feet to a cross notch found;
- 10. On a curve to the left, having a delta angle of 09°50'48", with a radius of 296.00 feet, for an arc length of 50.87 feet to a cross notch found, the chord for said curve bears N 85°07'22" E for a chord length of 50.81 feet;
- 11. N 80°12'01" E for a distance of 195.04 feet to an iron pin with a cap stamped Woolpert found;

- 12. On a curve to the right, having a delta angle of 12°43'33", with a radius of 209.27 feet, for an arc length of 46.48 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears N 86°33'47" E for a chord length of 46.38 feet;
- 13. S 87°04'28" E for a distance of 98.83 feet to a cross notch found;
- 14. On a curve to the right, having a delta angle of 39°36'07", with a radius of 59.00 feet, for an arc length of 40.78 feet to a cross notch found, the chord for said curve bears S 67°16'24" E for a chord length of 39.97 feet;
- 15. With a reverse curve to the left, having a delta angle of 42°00'06", with a radius of 75.00 feet, for an arc length of 54.98 feet to a cross notch found, the chord for said curve bears S 68°28'23" E for a chord length of 53.76 feet;
- 16. S 89°28'11" E for a distance of 97.50 feet to a cross notch found;
- 17. On a curve to the right, having a delta angle of 21°59'56", with a radius of 67.17 feet, for an arc length of 25.79 feet to a cross notch found, the chord for said curve bears S 78°28'13" E for a chord length of 25.63 feet;
- 18. With a reverse curve to the left, having a delta angle of 21°59'58", with a radius of 87.17 feet, for an arc length of 33.47 feet to a cross notch found, the chord for said curve bears S 78°28'14" E for a chord length of 33.26 feet;
- 19. S 89°28'11" E for a distance of 233.43 feet to a cross notch found;

Thence on a new division line, N 88°12'08" E for a distance of 284.45 feet to a cross notch found on the east line of said lot 83799 and being the west right of way line of Abbey Avenue (R/W varies);

Thence with the east line of said lot 83799 and the west line of said Abbey Avenue, S 01°48'33" W for a distance of 54.88 feet to an iron pin with a cap stamped Woolpert found on the southerly line of said lot 83799 and being the northerly line of CSX Transportation, Inc.;

Thence with the southerly line of said lot 83799 and the northerly line of said CSX Transportation, Inc. the following 9 courses;

- On a curve to the left, having a delta angle of 03°05'03", with a radius of 1423.38 feet, for an arc length of 76.62 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears S 70°03'02" W for a chord length of 76.61 feet;
- 2. S 68°30'30" W for a distance of 811.40 feet to an iron pin set;
- On a curve turning to the left, having a delta angle of 01°11'46", with a radius of 7163.56 feet, for an arc length of 149.55 feet to an iron pin set, the chord for said curve bears S 67°54'37" W for a chord length of 149.55 feet;
- 4. S 00°51'22" W for a distance of 5.45 feet to an iron pin set;

- 5. On a curve to the left, having a delta angle of 00°57'07", with a radius of 7158.56 feet, for an arc length of 118.94 feet to an iron pin with a cap stamped Woolpert, the chord for said curve bears S 66°49'08" W for a chord length of 118.94 feet;
- 6. S 66°20'34" W for a distance of 461.71 feet to a mag nail set;
- 7. S 73°19'03" W for a distance of 104.87 feet to a railroad spike found;
- 8. On a curve to the right, having a delta angle of 15°58'14", with a radius of 500.00 feet, for an arc length of 139.37 feet to a rail road spike found, the chord for said curve bears S 81°18'10" W for a chord length of 138.92 feet;
- S 89°17'17" W for a distance of 72.00 feet to the point of beginning, containing 17.3913 acres
  more or less and being subject to all right of ways, easements and restrictions of record.

Bearings in this description are based on Plat Book 196 page 42 of the Montgomery County Records. As recorded in the Montgomery County Engineer's Record of Land Surveys in Volume 2015 Page 0288.

This description is based on an actual survey performed by Tecumseh Surveying Inc. in November 2014 under my supervision.

Bernard D. Kienow, Jr.

PS 7456



### Legal Description Parcel 2

Situate in the City of Dayton, Section 31, Town 2, Range 6, E, Montgomery County, Ohio and being part of lot 83779 of the revised and consecutive number of lots on the Plat of the City of Dayton, AKA Delphi Automotive Systems LLC for Home Avenue as recorded in Plat Book 196 Page 42, as conveyed to Home Avenue Redevelopment LLC as recorded in IR Deed12-085342 and being more particularly described as follows;

Beginning at a northwest corner of said lot 83799 and being on the east right of way line of Ventura Avenue (40; R/W), witness an iron pin with a cap stamped LJB found S 18°34'41" E at a distance of 0.21 feet;

Thence with the north line of said lot 83799, S 89°40'15" E for a distance of 265.82 feet to the northeast corner of said lot 83799 and being on the west right of way line of Abbey Avenue (R/W varies), witness an 5/8" rebar found S 23°13'04" E at a distance of 0.36 feet:

Thence with the east line of said lot 83799 and being the west right of way line of said Abbey Avenue the following 4 courses;

- 1. S 00°33'22" W for a distance of 194.89 feet to a cross notch found;
- 2. S 88°05'00" W for a distance of 26.00 feet to an iron pin set;
- 3. S 00°33'22" W for a distance of 40.04 feet to a cross notch found;
- 4. S 01°49'40" W for a distance of 387.70 feet to a cross notch found;

Thence on a new division line, S 88°12'08" W for a distance of 284.45 feet to a cross notch found on the south right of way line of said Ventura Avenue;

Thence along the south right of way and becoming the east right of way of said Ventura Avenue the following 3 courses;

- On a curve to the left, having a delta angle of 89°05'10", with a radius of 45.00 feet, for an arc length of 69.97 feet to a cross notch found, the chord for said curve bears N 45°59'10" E for a chord length of 63.13 feet;
- 2. S 89°23'43" E for a distance of 7.50' feet to an iron pin with a cap stamped Woolpert found;
- 3. N 00°36'17" E for a distance of 589.99 feet to the point of beginning, containing 3.5543 acres more or less and being subject to all right of ways, easements and restrictions of record.

Bearings in this description are based on Plat Book 196 page 42 of the Montgomery County Records. As recorded in the Montgomery County Engineer's Record of Land Surveys in Volume 2015 Page 0288.

This description is based on an actual survey performed by Tecumseh Surveying Inc. in November 2015 under my supervision.

Bernard D. Kienow, Jr. PS 7456



### Lot 83800 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83800 of the revised and consecutive number of lots on the Plat of the City of Dayton, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the southwest corner of said lot 83800;

Thence N 00°51'22" E for a distance of 222.05 feet;

Thence S 89°20'06" E for a distance of 105.04 feet;

Thence S 00°51'22" W for a distance of 195.36 feet;

Thence on a curve turning to the right with a radius of 15.00feet, for an arc length of 23.80feet, the chord for said curve bears S 46°18'39" W for a chord length of 21.38feet;

Thence with a reverse curve turning to the left with a radius of 234.27feet, for an arc length of 47.34feet, the chord for said curve bears S 85°59'23" W for a chord length of 47.26feet;

Thence S 80°12'01" W for a distance of 43.46 feet to the point of beginning, containing 0.5149 acres more or less and being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Klenow, Jr.

P.S. 7456



### Lot 83801 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83801 of the revised and consecutive number of lots on the Plat of the City of Dayton,, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the northwest corner of said lot 83801;

Thence S 89°18'07" B for a distance of 105.06 feet;

Thence S 00°51'22" W for a distance of 202.14 feet;

Thence with a curve turning to the right with a radius of 50.00feet, for an arc length of 16.65feet, the chord for said curve bears N 57°00'24" W for a chord length of 16.57feet;

Thence with a reverse curve turning to the left with a radius of 84.00 feet, for an arc length of 58.06 feet, the chord for said curve bears N 67°16'20" W for a chord length of 56.91 feet;

Thence N 87°04'28" W for a distance of 23.77 feet;

Thence on a curve turning to the right with a radius of 15.00 feet, for an arc length of 23.02 feet, the chord for said curve bears N 43°06'34" W for a chord length of 20.83 feet;

Thence N 00°51'22" E for a distance of 155.99 feet to the point of beginning, containing 0.4301 acres more or less and being subject to all easements, restrictions and right of ways of record

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Klenow, Jr.

P.S. 7456



### Lot 83802 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83802 of the revised and consecutive number of lots on the Plat of the City of Dayton,, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the southwest corner of said lot 83802;

Thence N 00°33'22" B for a distance of 120.39 feet

Thence N 04°53'26" B for a distance of 198.47 feet;

Thence N 00°33'22" B for a distance of 562.09 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 34.24feet, the chord for said curve bears N 39°47'25" E for a chord length of 31.62feet;

Thence N 79°01'28" E for a distance of 83.24 feet;

Thence S 67°07'18" B for a distance of 246.35 feet;

Thence N 01°05'04" E for a distance of 17.28 feet;

Thence N 67°07'55" W for a distance of 33.68 feet;

Thence N 01°04'25" B for a distance of 103.87 feet;

Thence N 79°01'28" B for a distance of 432.36 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 44.56feet, the chord for said curve bears S 49°54'51" B for a chord length of 38.89feet;

Thence S 01°08'49" W for a distance of 367.98 feet;

Thence S 67°07'18" B for a distance of 717.26 feet;

Thence S 01°22'42" W for a distance of 90.44 feet;

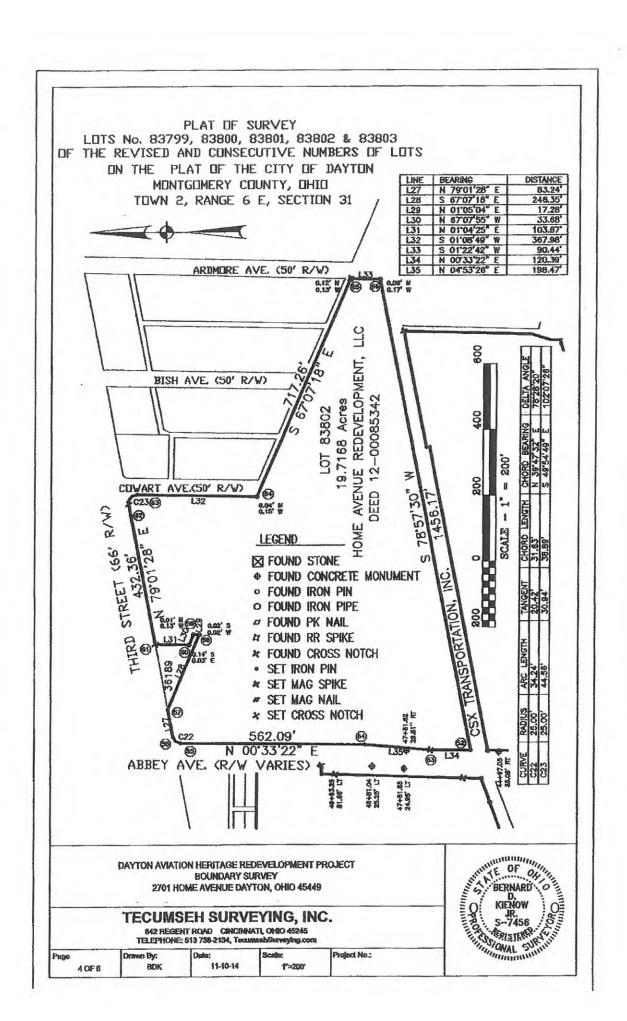
Thence S 78°57'30" W for a distance of 1456.16 feet to the point of beginning, containing 19.7168 acres more or less and being subject to all easements, restrictions and right of ways of record.

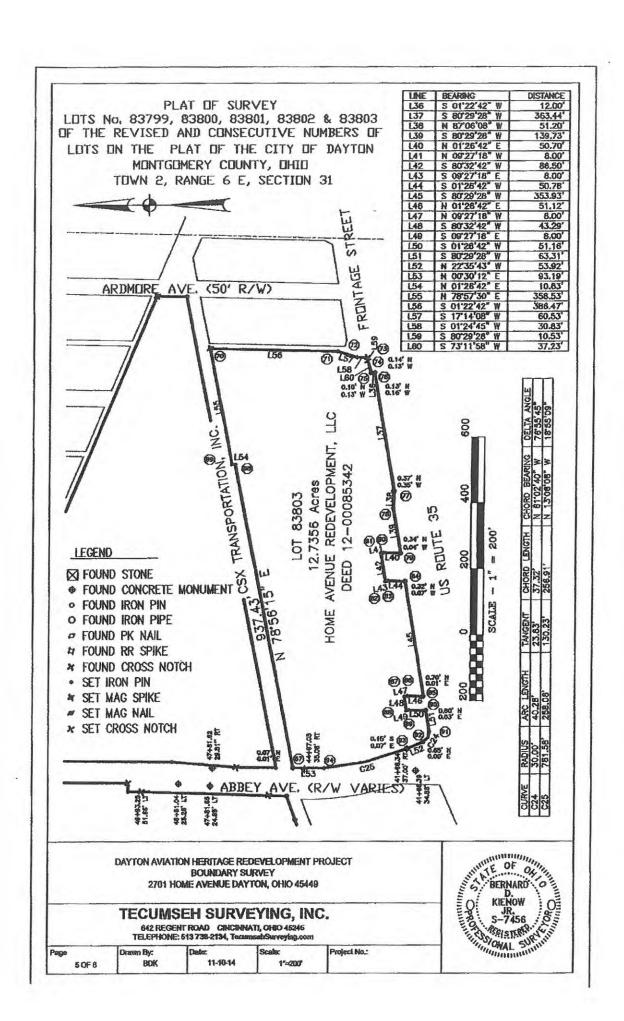
Description is based on Plat Book 196 page 42 of the Montgomery County Records.

P.S. 7456



i





POINT#	NORTH	EAST	POINT#		EAST
1	641042.226	1477424.706	52	641744.345	1479318.458
2	641734.442	1477425.645	53	641864.733	1479319.627
3	641749.422	1477440.694	54	642062.480	1479336.547
4	641748.974	1477575.333	55	642624.544	1479342.002
5	641750.807	1477607.030	56	642648.844	1479362.243
6	641765.487	1477729.957	57	642664.692	1479443.961
7	641768.652	1477786.221	58	642568.917	1479670.931
8	641767.743	1477927.098	59	642586.194	1479671.258
9	641770.036	1477958.732	60	642599.283	1479640.225
10	641772.174	1477987.114	61	642703.134	1479642.171
11	641772.094	1478086.454	62	642785.451	1480066.623
12	641776.413	1478137,078	63	642760.408	1480096.378
13	641809.610	1478329.272	64	642392.501	1480089.012
14	641812.391	1478375,573	65	642113.648	1480749.847
15	641807.347	1478474.274	66	642023,234	1480747.671
16	641791.904	1478511.144	67	641692.573	1479317.971
17	641772.178	1478561,151	68	641872,447	1480237.983
18	641771.276	1478658.647	69	641883.073	1480238.251
19	641766.153	1478683.762	70	641951.740	1480590.144
20	641759,504	1478716.355	71	641565.382	1480580.848
21	641757.344	1478949.775	72	641507.570	1480562.913
22	641801.209	1478995.176	73	641476.749	1480562.153
23	641801.129	1479002.676	74	641475,010	1480551,768
24	642391.087	1479008.903	75	641464.249	1480516.127
25	642389.559	1479274.719	76	641452.252	1480515.838
26	642194.679	1479272.827	77	641392,212	1480157.392
27	642193.809	1479246.842	78	641394.800	1480106.257
28	642153.771	1479246,453	79	641371.717	1479968.447
29	641766.268	1479234.087	80	641422,400	1479969.726
30	641711,416	1479232,354	81	641430.292	1479968.412
31	641685.276	1479160.341	82	641416.082	1479883,087
32	641388.007	1478405.357	83	641408.191	1479884.401
33	641331.768	1478266.784	84	641357.427	1479883,120
34	641326.318	1478266.703	85	641298,958	1479534.053
35	641279.527	1478157.397	86	641350.061	1479535.342
36	641094.232	1477734,458	87	641357.953	1479534.028
37	641064.127	1477634.002	88	641350.841	1479491.326
38	641043.120	1477496.680	89	641342.950	1479492.641
39	641826.807	1478282.189	90	641291.806	1479491,350
40	642048.876	1478285.507	91	641281.347	1479428,910
41	642047.656	1478390,540	92	641299.416	1479396.254
42	641852.318	1478387.621	93	641349.197	1479375.537
43	641837.549	1478372.160	94	641599.384	
44	641834.244	1478325.016	9,	- 1 10001001	11,5511,02
45	642004.703	1478439.908			
	642003.423	1478544.960			
46	641801.306	1478541.940			
47	641810.329	1478528.042			
48		1478475.551			
49 50	641832.316 641833.526	1478451.810			
	0410.33370	14/0401.0101			

DAYTON AVIATION HERITAGE REDEVELOPMENT PROJECT BOUNDARY SURVEY 2701 HOME AVENUE DAYTON, OHIO 45449

## TECUMSEH SURVEYING, INC.

642 REGENT ROAD GINCINNATI, OHIO 45245 TELEPHONE: 513 738-2134, TecumsehSurveylog.com

Page *	Drasm By:	Date;	Scale:	Project No.:
6 OF	6 BOK	11-10-14	1"=200"	



### Lot 83803 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83803 of the revised and consecutive number of lots on the Plat of the City of Dayton, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the northwest corner of said lot 83803;

Thence N 78°56'15" E for a distance of 937.43 feet;

Thence N 01°26'42" B for a distance of 10.63 feet;

Thence N 78°57'30" B for a distance of 358.53 feet;

Thence S 01°22'42" W for a distance of 386.47 feet;

Thence S 17°14'08" W for a distance of 60.53 feet;

Thence S 01°24'45" W for a distance of 30.83 feet;

Thence S 80°29'28" W for a distance of 10.53 feet;

Thence S 73°11'58" W for a distance of 37.23 feet;

Thence S 01°22'42" W for a distance of 12.00 feet;

Thence S 80°29'28" W for a distance of 363,44 feet;

Thence N 87°06'08" W for a distance of 51.20 feet;

Thence S 80°29'28" W for a distance of 139.73 feet;

Thence N 01°26'42" B for a distance of 50.70 feet;

Thence N 09°27'18" W for a distance of 8.00 feet;

Thence S 80°32'42" W for a distance of 86,50 feet;

Thence S 09°27'18" E for a distance of 8.00 feet;

Thence S 01°26'42" W for a distance of 50.78 feet;

Thence S 80°29'28" W for a distance of 353.93 feet;

Thence N 01°26'42" B for a distance of 51.12 feet;

Thence N 09°27'18" W for a distance of 8.00 feet;

Thence S 80°32'42" W for a distance of 43.29 feet;

Thence S 09°27'18" E for a distance of 8.00 feet;

Thence S 01°26'42" W for a distance of 51.16 feet;

Thence S 80°29'28" W for a distance of 63.31 feet;

Thence on a curve turning to the right with a radius of 30,00feet, for an arc length of 40,28feet, the chord for said curve bears N 61°03'08" W for a chord length of 37.32feet;

Thence N 22°35'43" W for a distance of 53.92 feet;

Thence on a curve turning to the right with a radius of 781.58feet, for an arc length of 258.08feet, the chord for said curve bears N 13°08'08" W for a chord length of 256.91feet;

Thence N 00°30'12" B for a distance of 93.20 feet to the point of beginning, containing 12.7356 acres more or lessand being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Kienow, Jr. P.S. 7456

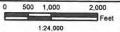


# Exhibit 2 Property Location Map





DISCLAIMER
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Quad: Dayton North & Dayton South

Source: The topographic map was acquired through the USGS Topographic Map web service.

The aerial photo in the inset was acquired through the ESRI Image web service. Aerial photography dated 2012.



Suite 200 Dublin, Ohio 43016

Phone: (614) 793-8777 (614) 793-9070 www.hullinc.com

Dayton Aviation Heritage Redevelopment Project Operation and Maintenance Plan

Property Boundary Map

2701 Home Avenue Dayton, Montgomery County, Ohio

December 2016

HME001\_16\_Fig01\_PropLocMap.mxd Edited: 12/19/2016 By: jslifer

Figure

# Exhibit 3 Executive Summary

#### **EXECUTIVE SUMMARY**

Property: Dayton Aviation Heritage Redevelopment Project Property

Alias Property Names: Former GM Delphi Home Avenue Facility

Property Address: 2701 Home Avenue, Dayton, Montgomery County, Ohio 45417

Volunteer(s): Home Avenue Redevelopment LLC, 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016 and City of Dayton, 101 West third Street, Dayton, Ohio 45402

Owner: Home Avenue Redevelopment LLC, 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016

NFA Letter and Executive Summary Issued by: Laura Funk, VAP Certified Professional #286, Amec Foster Wheeler Environment & Infrastructure, Inc., 521 Byers Road, Suite 204, Miamisburg, Ohio 45342, 937-859-3600

This No Further Action (NFA) letter executive summary serves as both a summary and recording document to meet the requirements of Ohio Revised Code (ORC) 3746.14(A)(1) and Ohio Administrative Code (OAC) 3745-300-13(J) under Ohio's Voluntary Action Program (VAP). Copies of the NFA letter and request for Covenant Not to Sue (CNS) may be obtained by contacting the Ohio EPA – Division of Environmental Response and Revitalization, Central Office Records Management Officer. A legal description of the approximately 54.35-acre property is included in the NFA letter.

#### SECTION 1.0 HISTORY

### Section 1.1 Property History

The Property was reportedly agricultural land prior to approximately 1910. In 1910, portions of the Property to the east of Abbey Avenue (the "Main Plant") were developed by the Wright Company for the manufacturing of airplanes and airplane components. By 1919, the Main Plant was occupied by the Dayton-Wright Airplane Company, the Standard Foundry Company, and railroad spurs. General Motors began operations on the Property in 1919. General Motors and divisions thereof (e.g. Inland Manufacturing Company) continued the manufacture of airplane and automotive components and eventually expanded to include products for use in appliances, radios, and motorized equipment. By 1950, the Standard Foundry was no longer present on the Property. The southwest corner of the Main Plant was used as a grocery store and pharmacy prior to General Motors occupancy, and the north parking lot of the Main Plant was used as a restaurant and service station prior to General Motors occupancy.

General Motors began to develop the portion of the Property to the west of Abbey Avenue (the "Hill Plant") in 1953. In January 1999, the Delphi Automotive Division separated from General Motors. The company ultimately was renamed the Delphi Corporation. Operations at the Delphi facility reportedly ceased in December 2008. The owner of record at that time was the DPH Holdings Corp. Home Avenue Redevelopment LLC acquired the Property in 2012. The Property is presently vacant.

### Section 1.2 Surrounding Property History

The Property is located in an area that has historically consisted of mixed residential and commercial use. Residential properties have been, and are currently, located to the north and west of the Hill Plant and to the east of the Main Plant. Additional residential properties are located to the south of the Main Plant across Route 35 and Home Avenue. Commercial properties and a school are located to the south of the Hill Plant. Commercial properties are located immediately north of West Third Avenue near the Main Plant. It is assumed that the chemicals of concern (COCs) identified in on-Property soils and/or groundwater are the result of releases from the Property.

### SECTION 2.0 GENERAL DESCRIPTION OF PROPERTY

## Section 2.1 Phase I Property Assessment and General Information

The NFA Property is located at 2701 Home Avenue, Dayton, Ohio. The 54.35-acre Property is located south of Third Street to the east and west of Abbey Avenue, in Dayton, Montgomery County, Ohio. The Property is prepared for redevelopment and is currently vacant. Surrounding property use is a mix of commercial and residential.

The Phase I Property Assessment was completed for the purpose of satisfying the requirements of OAC 3745-300-06 in anticipation of pursuing a No Further Action (NFA) Letter for the Property. A Phase I Property Assessment report and Phase I Update were completed by Haley and Aldrich, Inc. (Haley & Aldrich) in June 2010 and January 2011, respectively. A VAP Update to Phase I Property Assessment was completed by Hull & Associates, Inc. (Hull) in August 2015. The Certified Professional, Ms. Laura Funk, completed a walkover of the Property on August 4, 2015 which is within 180 days prior to issuance of the NFA letter.

Groundwater in the upper unconsolidated saturated zone is encountered at a depth between approximately 6 and 20 feet below ground surface. Groundwater in the lower unconsolidated saturated zone is encountered at depths between approximately 33 and 42 feet below ground surface. Groundwater flow in the upper saturated zone is to the east-northeast, and flow within the lower saturated zone is to the east-southeast. Bedrock beneath the Hill Plant portion was encountered between depths of 10 and 15 feet below ground surface. The elevation of the bedrock surface decreases to the east. Borings completed in the Main Plant portion of the Property did not encounter bedrock. In the extreme eastern portion of the Property bedrock is at least 70 feet below ground surface. The shaley limestone bedrock is not considered a saturated zone beneath the Property.

Haley & Aldrich initially identified 52 Identified Areas (IAs) in their June 2010 Phase I Property Assessment and January 2011 Phase I Update. The IAs are described in Table 1. Four of the IAs (IA-44, -45, -46, and -48) were later eliminated as described in the *Response to VAP MOA Track Notice of Deficiencies* prepared by Hull in February 2014.

Table 1 - Identified Areas

Identified Area	Description of Area/Source	COCs
IA-01	UST Area A	VOCs, SVOCs and Metals
IA-02	East Coal Pile Area and former Gasoline UST	VOCs, SVOCs and Metals
IA-03	UST Area K, Rail Spur Area, Oil House Area and General Store Area	VOCs, SVOCs, PCBs and Metals
IA-04	East UST Soil Pile Area	VOCs, SVOCs and Metals
IA-05	North Scrap Yard Area, Maintenance Building Area, Ash drop System Area and North Rail Lines and Easement Area	VOCs, SVOCs, PCBs and
IA-06	Former Standard Foundry Area and 1950 Factory Buildings Area	VOCs, SVOCs and Metals
IA-07	Building 20 Historical Tanks Area, Foundry Rail Spur Area and Central Scrap Yard Area;	VOCs, SVOCs, PCBs and Metals
IA-08	Original Cement House Area	VOCs, SVOCs and Metals
IA-09	Building 1 Area and Coal Power House Repair Room Area	VOCs, SVOCs and Metals
IA-10	Building 2 Area and Power House Rail Spur Area	VOCs, SVOCs and PCBs
IA-11	Building 3 Area	VOCs and Metals

Table 1 - Identified Areas

11 (15)	Table 1 – Identified Areas	
Identified Area	Description of Area/Source	COCs
IA-12	Building 4 Area	VOCs
IA-13	Building 5 Area	VOCs
IA-14	Former Building 6 Area	VOCs and SVOCs
IA-15	Former Drum Storage Area and Hot Pad Dump Area	VOCs, PCBs and Metals
IA-16	Al Anodizing Area, Building 18 Spray Washer Area and Press Pit Area and Building 18 ASTs Area	VOCs, SVOCs, PCBs ar Metals
IA-17	Former Garage Area	VOCs and SVOCs
IA-18	Quality Labs Area, Building 13 Tunnel Area, West Test Labs Area	VOCs and SVOCs
IA-19	UST Tank Area E and VP Parking Spot Area	VOCs, SVOCs, TPH
IA-20	Caustic Storage AST Area	VOCs, SVOCs and Metals
IA-21	UST Area C and Main Plant East Building 11 Area	VOCs, SVOCs, TPH
IA-22	South Plating and Presses Area and Fill Beneath Floor Area	VOCs, SVOCs and Metals
IA-23	South C.V. Processes Area	VOCs and Metals
IA-24	Building 11 Basement Area	VOCs, SVOCs and Metals
IA-25	UST Area D and Main Plant Building 11 Southeast Area	VOCs, SVOCs, TPH
IA-26	Wet Paint Spray Booths Area	VOCs, SVOCs, PCBs and Metals
IA-27	Paint Storage and Main Plant Building 11 North Area	VOCs
IA-28	North Plating and Rust Proofing Area	VOCs and Metals
IA-29	Building 11 North Dock Area	VOCs and SVOCs
IA-30	North Coal Yard Area	VOCs, SVOCs and Metals
IA-31	Gasoline Station Area	VOCs
IA-32	Hill Plant Cement House Area	
IA-33	Cement House USTs Area	VOCs, SVOCs and Metals
IA-34	Hill Plant Soil Pile Area	VOCs, SVOCs and Metals
IA-35	Former Above Ground Tank Farm Area	VOCs, SVOCs and Metals VOCs
IA-36	Building 25A Area	VOCs, SVOCs and Metals
IA-37	UST Area H and Hill Plant Building 25A Southwest Area	VOCs, SVOCs, TPH
IA-38	110= 1	VOCs, SVOCs and Metals
IA-39	Water Layer Pit Area	VOCs, SVOCs and Metals
A-40	Weather Stripping Rooms Area	VOCs, SVOCs, PCBs and Metals
A-41	Flow Coater Area	VOCs, SVOCs and Metals
A-42		VOCs, SVOCs and Metals
A-43	144 1 144 1	VOCs, SVOCs and Metals
A-44	Central Dip Tanks Above Ground	NA – Further Evaluation Indicated No Pathway to Site Media

Table 1 - Identified Areas

Identified Area	Description of Area/Source	COCs
IA-45	Mobile Parts Washer Area	NA – Further Evaluation Indicated No Pathway to Site Media
IA-46	Cement Mixing Process Area	NA – Further Evaluation Indicated No Pathway to Site Media
IA-47	Elevator Equipment Room Area	VOCs
IA-48	Building 23 Sump Area	NA – Further Evaluation Indicated No Pathway to Site Media
IA-49	Rail Spur ASTs Area	VOCs, SVOCs and Metals
IA-50	South Rail Spur Area	VOCs and SVOCs
IA-51	Stained Soil Area	VOCs
IA-52	Property-wide Groundwater	VOCs and Metals

Notes:

COC - Chemical of Concern

NA - Not applicable

SVOCs - Semi-volatile Organic Compounds

VOCs - Volatile Organic Compounds

IA - Identified Area

PCBs - Polychlorinated biphenyls

TPH - Total Petroleum Hydrocarbons

UST - Underground Storage Tank

#### Section 2.2 Proposed Land Use

Redevelopment plans have not been finalized to date. The Property will be restricted to commercial or industrial land use. The northern portion of the Main Plant is currently proposed to be part of the National Park Service Dayton Aviation Heritage Museum.

#### Section 2.3 Asbestos Survey and Abatement

Central Insulation Systems, Inc. (CIS) of Cincinnati, Ohio was contracted to remove all regulated asbestos-containing material (RACM) from the on-Property buildings prior to their demolition. The asbestos-containing material (ACM) removal began in February 2013 and was completed in April 2014. According to CIS's closeout documentation the following ACM was removed from the structures on the Property:

- 22,163 bags of asbestos containing pipe insulation;
- 2,574 bundles of asbestos containing pipe sections;
- 1,782 bags of asbestos containing duct insulation;
- 6 bags of asbestos containing transite;
- 398 bags of asbestos containing plaster and pipe;
- · 2,465 bags of asbestos containing plaster;
- 910 bags of asbestos containing pipe insulation and duct insulation;
- 2,373 bags of asbestos containing boiler insulation;
- · 317 bags of asbestos containing transite and pipe insulation; and
- 90 cubic yards of asbestos containing floor tile

# Section 2.4 Approvals Obtained Prior to Issuance of NFA Letter

# Section 2.4.1 Urban Setting Designation (USD)

The NFA Property is located in the Westview Project Area USD approved by the director on October 22, 2012. The USD was verified as documented in the August 2015 VAP Update to the Phase I Property Assessment. In accordance with OAC 3745-300-10, the USD was determined to remain valid and protective for the off-property potable use pathway for the NFA Property.

# Section 2.4.2 Off-Property Pathway Omission after Applying Diligent Efforts

A request to have off-property pathways omitted pursuant to OAC 3745-300-11(D) has not been submitted with regard to the NFA Property.

# Section 2.4.3 Variance or Case-by-Case Determination

No variance or case-by-case determination pursuant to OAC 3745-300-12 has been requested with regard to the NFA Property.

# Section 2.5 Phase II Property Assessment

#### Soil:

Each complete exposure pathway for direct contact with soil, and the associated point of compliance; pursuant to OAC 3745-300-07 is listed on Table 2.

Table 2 - Soil Exposure Pathways

	Con Exposure I attivi	ays	
Pathway	Suite of COCs for each pathway	Point of Compliance	
Direct contact to commercial / industrial workers	VOCs, PAHs, TPH, Metals and PCBs	2-feet below ground surface	
Direct contact to construction / excavation workers	VOCs, PAHs, TPH, Metals and PCBs	10 feet below ground surface	

A Phase II Property Assessment was conducted by Haley & Aldrich between 2006 and 2011 to evaluate whether applicable standards are met in the IAs and affected media. The Phase II Property Assessment was documented in a report by Haley & Aldrich dated January 2012. The Phase II activities involved the advancement and sampling of over 300 borings. The majority of soil samples were collected at intervals between 0 and 10 feet below ground surface. Additional soil samples were collected at depths approaching 22 feet below ground surface. Subsurface materials observed beneath the Hill Plant consisted primarily of 5 to 15 feet of fill material composed of reworked sand, clay, gravel, slag, cinders and ash. Bedrock was encountered as shallow as 10 feet in some of the borings completed in the Hill Plant. Subsurface materials beneath the Main Plant consisted of fill and sand interbedded with clay. Bedrock was not encountered in any of the borings completed beneath the Main Plant. A boring in the extreme eastern portion of the Property was completed at a depth of 70 feet below ground surface and did not encounter bedrock.

The August 2015 Phase II Addendum prepared by Hull documents that there were 15 separate areas on the Property (designated as excavation areas EA-1 through EA-15 and discussed in Section 4.0) that contained one or more COCs at concentrations exceeding, or contributing to an exceedance of, applicable soil standards. The primary COCs contributing to exceedances in these EAs consisted of:

- Arsenic reported at concentrations of 59.9 milligrams per kilogram (mg/kg) in boring GP-119, 87.2 mg/kg in boring GP-427 and 92.5 mg/kg in boring GP-260;
- Lead maximum concentration of 835 mg/kg in boring GP-553;
- Xylenes reported at concentrations between 620 mg/kg and 1250 mg/kg in borings GP-262, GP-266 GP-434, and GP-454. A maximum concentration of 24,000 mg/kg was reported in a sample from boring GP-568;
- Toluene maximum concentration of 4,420 mg/kg in boring GP-454;
- PCBs maximum concentration of 140 mg/kg in boring GP-110;
- Benzo(a)pyrene reported at concentrations ranging from 5.5 mg/kg to 19.5 mg/kg in borings GP-200, GP-524, GP-526 and GP-535;

- Trichloroethene ranged in concentration from 5.04 mg/kg in boring GP-552 to 48 mg/kg in boring GP-164; and.
- Vinyl chloride reported at a maximum concentration of 17.3 mg/kg in boring GP-552.

#### Ground water:

Each groundwater zone beneath the Property and associated response requirements are described on Table 3.

Table 5 – Ground Water Zones						
Ground water zone (depth range)	Suite of COCs in groundwater	Classification	Response requirement / Complete exposure pathway			
Upper unconsolidated saturated zone (6 to 20 feet)	VOCs, SVOCs and metals	Class A within an USD	Meet UPUS at USD boundary or ½ mile from the Property (whichever is greater) and protect on and off-property receptors from vapor intrusion via groundwater to indoor air.			
Lower unconsolidated Saturated Zone (33 to 42 feet)	VOCs	Class A within an USD	Meet UPUS at USD boundary or ½ mile from the Property boundary (whichever is greater).			

Table 3 - Ground water zones

The monitoring network used by Haley & Aldrich in their January 2012 Phase II Property Assessment consisted of 32 monitoring wells located across both the eastern and western portions of the Property. Twenty two of the monitoring wells were installed within the upper unconsolidated saturated zone. The remaining 10 wells were installed within the lower unconsolidated saturated zone. The shaley limestone which underlies the unconsolidated deposits is not considered to be a water bearing unit (Schmidt, 1986) in the vicinity of the Property. Therefore, no monitoring wells were installed in the bedrock underlying the Property.

Groundwater samples were collected during a minimum of two separate events at each well in the VAP monitoring network from June 2011 through October 2011. The collection dates, although compressed into a 5-month span, represent samples from the second, third and fourth quarters of that calendar year. Haley & Aldrich also collected groundwater samples from monitoring wells MW-120 through MW-129 which were installed and sampled in 2012 to assess three former UST systems.

Only the upper unconsolidated saturated zone is present beneath the Hill Plant of the Property due to the relatively shallow depth to bedrock. Groundwater samples collected in 2011 contained metals (arsenic and cadmium) and SVOCs at concentrations exceeding UPUS. Arsenic was reported at a maximum concentration of 23.1 micrograms per liter ( $\mu$ g/L) in a sample from monitoring well DIW-109. Cadmium was reported at a maximum concentration of 8.2  $\mu$ g/L in a sample from monitoring well DGW-106. Bis(2-ethylhexyl)phthalate, bis(2-chloroethyl)ether and naphthalene were reported at concentrations of 13.9  $\mu$ g/L, 0.38  $\mu$ g/L, and 3  $\mu$ g/L, respectively.

Both unconsolidated saturated zones are present beneath the Main Plant of the Property. COCs exceeding UPUS in the upper unconsolidated saturated zone included lead (22  $\mu$ g/L) and bis(2-ethylhexyl)phthalate (40  $\mu$ g/L) in monitoring wells DDW-121 and MW-12S, respectively. Several VOCs including chloroform (maximum concentration 370  $\mu$ g/L in DBW-118), trichloroethene (maximum concentration 30  $\mu$ g/L in DBW-120), tetrachloroethene (maximum concentration 210  $\mu$ g/L in DAW-116) and vinyl chloride (maximum concentration 4.4  $\mu$ g/L in DBW-119) were also reported in excess of UPUS in groundwater samples collected in 2011.

VOCs were the only COCs reported at concentrations above UPUS in the lower saturated zone. Trichloroethene was reported at a maximum concentration of 9.3  $\mu$ g/L in monitoring well MW-12D. Vinyl chloride was reported at a maximum concentration of 4.8  $\mu$ g/L in monitoring well MW-5D and

tetrachloroethene was reported at a maximum concentration of 5.6  $\mu$ g/L in monitoring well DAW-117. Chloroform was reported as a maximum concentration of 94  $\mu$ g/L in monitoring well MW-129.

#### **Surface Water and Sediments:**

There are no surface water bodies or sediments on, or within the immediate vicinity of, the Property.

#### Soil Gas / Indoor Air:

#### Off-Property

Sub-slab depressurization systems (SSDS) were installed in ten off-Property structures that contain 13 residences in the course of activities conducted by Delphi Corporation under an Administrative Order of Consent with the U.S. Environmental Protection Agency. Since 2008 an annual inspection and sub-slab vapor and indoor air sampling program has been implemented for the occupied off-Property residences that are equipped with SSDS. The inspections and sampling have been conducted by Hull personnel since Home Avenue Redevelopment LLC acquired the Property. Sub-slab soil gas and indoor air sampling is conducted for a subset of the operational systems annually for chloroform, trichloroethene and tetrachloroethene. Annual sampling results indicate the sub-slab depressurization systems (SSDS) are functioning properly, and there are no COC concentrations in recent indoor air samples exceeding applicable criteria contained in the Operation and Maintenance Plan.

In January 2015, Hull collected soil gas samples from several probes installed by Haley & Aldrich in close proximity to the residences with remedial systems to document more current VOC concentrations in the soil gas. Ohio EPA conducted further investigation of soil gas concentrations in June 2016. Ohio EPA collected 33 soil gas samples from new and existing soil gas ports located east of the Main Plant. Trichloroethene, tetrachloroethene, and chloroform were identified at concentrations exceeding screening levels. The soil gas data was used to delineate an off-Property area of concern for the vapor intrusion to indoor air pathway. Each property within the area of concern was evaluated to determine if it contained an occupied structure. The evaluation identified three potentially occupied residences that were not equipped with SSDS. Ohio EPA was granted access to two of the residences and conducted sub-slab soil gas and indoor air sampling in August 2016. The data did not indicate a need for a SSDS for either of the two residences that were sampled.

#### **On-Property**

In August 2011, Haley & Aldrich collected soil gas grab samples from 20 vapor probes installed at depths of approximately 15 feet below ground surface. VOCs were identified at concentrations exceeding screening levels. To further evaluate potential vapor intrusion risk, sub-slab vapor samples were collected by Hull in January 2015 from five monitoring points installed beneath Buildings 1 through 5, which are the buildings proposed to be preserved as part of the Dayton Aviation Heritage museum. The 2015 samples were collected for analysis of VOCs over an approximate 8-hour time frame. Mercury samples were collected over an approximate 3-hour time period immediately after the VOC samples were collected. None of the COCs reported in the sub-slab soil gas samples were present at concentrations that would contribute to an exceedance of applicable standards for indoor air.

**Pathways:** Complete exposure pathways include inhalation of volatile emissions from soil and/or groundwater to indoor air by on-Property and off-Property commercial/industrial workers and off-Property residents.

Point of Compliance: Indoor Air

Table 4 - Soil Gas / Indoor Air Monitoring

Suite of COCs assessed	Type of sample		
VOCs and mercury	Exterior and sub-slab soil gas on-Property		
VOCs (TCE, PCE and chloroform)	Exterior and sub-slab soil gas and indoor air off- Property		

# Section 2.6 Background Evaluation and Findings

Background evaluations were not completed in support of the voluntary action for the Property.

# SECTION 3.0 SUMMARY OF DATA COLLECTION AND EVALUATIONS

# Section 3.1 Summary of Receptors and Pathways On and Off Property

Table 5 describes current and reasonably anticipated complete exposure pathways on and off the NFA Property to COCs originating from the Property.

Table 5 Summary of Receptors and Pathways

Receptor / Pathway	On or off property	Current or reasonably anticipated?
Commercial/Industrial Worker – direct contact with surface soils	On-Property	Property is currently vacant. Reasonably anticipated upon redevelopment. COCs contributing to the pathway were remediated to applicable standards.
Commercial/Industrial Worker – inhalation of particulate and volatile emissions from surface and subsurface soils	On-Property	Property is currently vacant. Reasonably anticipated upon redevelopment. COCs contributing to the pathway were remediated. An Activity and Use Limitation will be used to limit building occupancy in certain areas of the Property.
Commercial/Industrial Worker – inhalation of volatile emissions from groundwater to indoor air	On-Property	Property is currently vacant. Reasonably anticipated upon redevelopment. Determined to present no unacceptable risk in the existing contiguous buildings (Building 1 through 5 and 17). An Activity and Use Limitation will be used to limit building occupancy in certain other areas of the Property.

Table 5 Summary of Receptors and Pathways

Receptor / Pathway	On or off property	Current or reasonably anticipated?
Commercial/Industrial Workers – inhalation of volatile emissions from groundwater to indoor air	Off-Property	Potentially complete if a building were to be constructed in the off-Property area of concern. Mitigated through implementation of an occupancy review and response process as described in the Operation and Maintenance Plan.
Construction/Excavation Workers – direct contact with surface and subsurface soils	On-Property	Property is currently vacant. Reasonably anticipated during redevelopment. COCs contributing to the pathway were remediated to applicable standards.
Construction/Excavation Workers – inhalation of particulate and volatile emissions from surface and subsurface soils	On-Property	Property is currently vacant. Reasonably anticipated during redevelopment. COCs contributing to the pathway were remediated to applicable standards.
Construction/Excavation Workers – direct contact with and inhalation of volatile emissions from groundwater.	On-Property	Property is currently vacant. Reasonably anticipated during redevelopment. COCs contributing to the pathway were remediated to applicable standards.
Residential Receptors – inhalation of volatile emissions from groundwater to indoor air	Off-Property	Mitigated by operation and maintenance of sub-slab depressurization systems at select locations to the north and east of EU-1 and EU-1A and implementation of an occupancy review and response process as described in the Operation and Maintenance Plan.  Areas north and south of EU-2 determined to present no unacceptable risk.

# Section 3.2 Models used

Table 6 describes the model used in support of the voluntary action.

Table 6 - Models

Model	Pathway Evaluated		
BIOCHLOR, Version 2.2 (2000)	Potable use at USD boundary or ½ mile from Property boundary		
BIOSCREEN, Version 1.4 (1997)	Potable use at USD boundary or ½ mile from Property boundary		

The BIOCHLOR and BIOSCREEN modeling, in conjunction with the source removal completed during remediation of the Property, was used to demonstrate that COCs (TCE, PCE and chloroform) observed in the groundwater of the upper saturated zone at the down-gradient Property boundary will not migrate to the USD boundary at concentrations exceeding the generic or risk-derived UPUS. Site-specific information including hydraulic conductivity (4.90E-03 cm/sec) measured in on-Property monitoring wells, hydraulic gradient (0.0213), estimated effective porosity (0.25) based on predominant soil type, maximum COC concentrations, etc. were used as inputs in the models. Other input parameters, such as dispersivity, Koc, soil bulk density, COC half-life were default parameters within the model.

#### Section 3.3 Human Health Risk Assessment

The 2012 Haley & Aldrich Phase II indicated that the Property did not comply with applicable standards for potential receptor populations without remediation. The Haley & Aldrich Phase II was conducted in accordance with the VAP rules effective March 1, 2009. The risk evaluation was revised by Hull as described below, based upon the revised standards and risk assessment procedures in the VAP rules effective August 1, 2014. The results of the Phase II (Haley & Aldrich, 2012) were used to define the excavation areas EA-1 through EA-15 (refer to Section 4.0 below) which were remediated beginning in June 2014.

Remedial activities have been implemented at the Property. A post-remedial Property-specific risk assessment (PRPSRA) was completed by Hull and evaluated the hazard and risk posed to receptor populations by exposures to residual COC concentrations in each of five separate exposure units, based upon completion of the remedy in accordance with OAC 3745-300-09, effective August 1, 2014. The exposure units were defined as follows:

- Exposure unit EU-1 is east of Abbey Avenue and north of the rail spurs. EU-1 includes Identified Areas IA-01 through IA-03, IA-05 through IA-14, portions of IA-18, and IA-19 through IA-31;
- Exposure unit EU-1A is east of Abbey Avenue and south of the rail spurs. EU-1A includes Identified Areas IA-04, IA-15 through IA-17 and portions of IA-18;
- Exposure unit EU-2 is west of Abbey Avenue and south of Maywood Avenue and EU-2B. EU-2 includes Identified Areas IA-32 through IA-51;
- Exposure unit EU-2A includes two parking areas located north of Maywood Avenue on the east and west sides of Upper Avenue. There were no Identified Areas located in exposure unit EU-2A;
- Exposure unit EU-2B is north of Exposure Unit 2, west of Abbey Avenue, and east of Ventura Avenue.
   There were no Identified Areas located in exposure unit EU-2B.

The PRPSRA consisted of an evaluation of receptor populations for commercial/industrial land uses, including construction/excavation activities. The PRPSRA included an evaluation of compliance with applicable standards, considering cumulative hazard and risk to each receptor population within each exposure unit at the Property. The PRPSRA was based on the evaluation of soils, soil gas, indoor ambient air and groundwater underlying the Property under current conditions following the completion of soil removal and the establishment of other remedial activities (i.e., institutional controls and engineering controls).

The intended future use of the Property is commercial/industrial land use. The PRPSRA showed that following completion of the remedial activities, the Property complies with applicable standards under the Ohio VAP for a commercial/industrial land use (including direct contact soil standards for

commercial/industrial land use within the 2-foot POC and construction/excavation activities within the 10-foot POC based upon not exceeding a target risk of 1E-5 and hazard of 1 for each of the Exposure Units), based upon the completion of the following activities:

#### Institutional Controls:

- The establishment of an institutional control that restricts the Property to commercial or industrial land uses as defined in OAC 3745-300-08(C)(2)(b)(and (C)(2)(c), respectively, with a 2-foot point of compliance for direct contact soils.
- The establishment of an institutional control that prohibits the extraction and use of groundwater at the Property, in accordance with OAC 3745-300-11(C)(3).
- Implementation of an institutional control that restricts occupancy of buildings constructed at exposure units EU-1 and EU-2 on the Property, excepting the existing contiguous building (Buildings 1 through 5 and 17) until such time that either: (i) a remedy that eliminates potential indoor air vapor intrusion exposure to hazardous substances in excess of applicable standards is installed, operated and maintained as an engineering control under an operation and maintenance agreement and an operation and maintenance plan or (ii) the Certified Professional demonstrates through additional Property-specific analysis that, based on building design and location, the Property complies with applicable standards for the vapor intrusion to indoor air exposure pathway without further implementation of remedial activity. Based upon the results of the PRPSRA, this restriction does not apply to any building that may be constructed at exposure units EU-1A, EU-2A or EU-2B at the Property.

#### **Engineering Controls:**

- Maintain engineering controls (i.e. sub-slab depressurization systems) installed in off-Site residences through implementation of an Operation and Maintenance Plan (Hull March 2017), or approved updates thereof, mitigating exposure of volatile emissions to indoor air for the Off-Property receptor population to the east of exposure units EU-1 and EU-1A.
- Implementation of an occupancy review and response process whereby quarterly
  review of water usage records is conducted for certain off-Property residences and
  quarterly review of construction permits is conducted for certain off-Property
  vacant land. Response activities are required if occupancy or construction for
  occupancy is indicated by the quarterly reviews.
- Implementation of a process to gain control within the off-property area of concern, including pursuit of acquisition by City of Dayton of tax delinquent properties within the area of concern that meet certain eligibility criteria, placing existing residences on said acquired properties into the nuisance abatement queue for future demolition, requiring vapor intrusion evaluation and/or mitigation (if necessary) be conducted prior to occupancy of new structures on said acquired properties, and tagging cards maintained by the City of Dayton for properties within the off-property area of concern with a notation that environmental conditions may warrant further evaluation with respect to potential for vapor intrusion.

#### Section 3.4 Ecological Risk Assessment

There are no important ecological receptors on the Property or adjoining properties. Therefore, an ecological risk assessment was not required.

# Section 3.5 Protection of Ground Water Demonstration

Contamination in the upper and lower unconsolidated saturated zones is attributable to on-Property sources. COCs were detected in multiple on-Property monitoring wells at concentrations exceeding UPUS, including VOCs (upper and lower unconsolidated units), SVOCs (upper unconsolidated unit), and metals (upper unconsolidated unit). Due to the presence of multiple COCs above UPUS, the provisions for the protection of groundwater meeting UPUS do not apply to the upper and lower unconsolidated saturated zones. Shaley limestone bedrock beneath these zones is not a water bearing unit (Schmidt, 1986).

# SECTION 4.0 SUMMARY OF REMEDIAL ACTIVITIES IMPLEMENTED AND HOW THE ACTIVITIES COMPLY WITH APPLICABLE STANDARDS

#### Section 4.1 Summary Table

Table 7 summarizes remedial excavation activities implemented on the Property to achieve applicable standards.

Table 7 - Summary of on-Property Remedial Excavation Activities

Identified Area / Exposure Unit	Media	Representative Concentration of COCs in Identified Area <u>prior</u> to remediation by media (mg/kg)		Applicable Standard(s) (mg/kg)	Method Used for Deriving Applicable Standard	Method of Achieving Compliance with Applicable Standards or Remedy	
Excavation Area EA-1 in Exposure Unit 1	Soil	Arsenic	87	77	Generic Standard	Soil Removal	
Excavation Area EA-2 in Exposure Unit 1	Soil	Lead	835	800 and 400	Generic Standards	Soil Removal	
Excavation Area EA-3 in Exposure Unit 1	Soil	Xylenes	1200	260	Soil Saturation Value	Soil Removal	
Excavation Area EA-4 in Exposure Unit 1	Soil	Xylenes	1250	260	Soil Saturation Value	Soil Removal	
Excavation	Soil	PCBs	140	20	Generic standards	Soil Removal	
Area EA-5 in Exposure Unit 1A		Mercury	3.9	3.1			
Excavation Area EA-6 in Exposure Unit 1	Soil	Arsenic	92.5	77	Generic Standard	Soil Removal	
Excavation Area EA-7 in Exposure Unit 2	Soil	Benzo(a) pyrene	13.3	5.8	Generic Standard	Soil Removal	

Table 7 - Summary of on-Property Remedial Excavation Activities

Identified Area / Exposure Unit	Media	Represer Concentratio in Identified to remedia med (mg/k	n of COCs Area <u>prior</u> ition by ia	Applicable Standard(s) (mg/kg)	Method Used for Deriving Applicable Standard	Method of Achieving Compliance with Applicable Standards or Remedy	
Excavation Area EA-8 in Exposure Unit 2	rea EA-8 n Exposure		Xylenes 24,000	260	Soil Saturation Values	Soil Removal	
Excavation Area EA-9 in Exposure Unit 1	Soil	Arsenic	59.9	77	Generic Standard	Soil Removal	
Excavation Area EA-10 in Exposure Unit 1A	Soil	TCE	48	51 and 17	Generic Standards	Soil Removal	
Excavation Area EA-11 in Exposure Unit 2	Soil	Benzo(a) pyrene	6.29	5.8	Generic Standard	Soil Removal	
Excavation Area EA-12	Soil	Benzo(a) pyrene	19.5	5.8	Generic Standards	Soil Removal	
in Exposure Unit 2		Dibenz(a,h) anthracene	5.52	5.8			
Excavation Area EA-13 in Exposure Unit 2	Soil	Benzo(a) pyrene	5.5	5.8	Generic Standard	Soil Removal	
Excavation	Soil	TCE	5.04	17	Generic Standards	Soil Removal	
Area EA-14 in Exposure Unit 1		Vinyl Chloride	17.3	50 and 280			
Excavation Area EA-15 in Exposure Unit 1	Soil	Xylenes	227	260	Soil Saturation Values	Soil Removal	

Representative concentrations represent the maximum concentration of each COC that was reported in soil samples exceeding the appropriate applicable standards within the corresponding points of compliance.

# Section 4.2 Summary of Remedial Activities

As discussed in previous sections, demolition and remediation activities were completed on the Property between 2012 and 2014. Prior to demolition of the structures formerly located on the Property, all RACM were abated in accordance with applicable law.

Remedial excavations were completed at depths ranging from 2 to 10 feet below ground surface based on the depth at which soils exceeding one or both of the generic direct contact soil standards

(commercial/industrial and construction worker) were encountered. Confirmatory samples were collected from the sidewalls and base of each excavation to demonstrate that remaining soils did not contain COCs at concentrations exceeding the applicable standards. As noted in Table 7, the COCs determined to exceed applicable standards included metals (arsenic, lead, and mercury); PAHs including benzo(a)pyrene and dibenz(a,h)anthracene; PCBs; and VOCs including trichloroethene, xylenes, and vinyl chloride.

In addition to soil excavation, other active and passive remedies are being relied upon to meet applicable standards. These remedies include institutional controls on the Property, operation and maintenance of sub-slab depressurization systems at off-Property structures, implementation of an off-Property occupancy review and response process, and implementation of a process to gain control within the off-Property area of concern.

Table 8 summaries all remedies being used to demonstrate the Property meets applicable standards.

Table 8 - Summary of All Remedies

Type of Remedy	IA or EU applies to	COCs addressed	Pathway(s) addressed
Soil Excavation	Excavation Areas EA- 1 through EA-15 in Exposure Units 1, 1A and 2		Direct contact and vapor intrusion
Subslab depressurization systems subject to operation and maintenance	Off-Property residential structures	VOCs	Vapor intrusion to indoor air
Occupancy review and response process	Off-Property area of concern	VOCs	Vapor intrusion to indoor air
City of Dayton process to gain property control	Off-Property area of concern	VOCs	Vapor intrusion to indoor air
Prohibited use of groundwater in an environmental covenant	Property wide	Metals, SVOCs, VOCs	On property potable and non-potable use of groundwater
Commercial/industrial land use restriction in an environmental covenant	Property wide	Metals and SVOCs	Direct contact with soil by commercial or industrial workers
Activity Use Limitation – No occupancy in buildings (excepting Buildings 1 through 5 and 17) without further evaluation	Exposure Unit 1, Exposure Unit 2	VOCs	Vapor Intrusion to Indoor Air

Delphi Corporation also conducted remedial activities prior to the voluntary action on the Property including operation of a soil vapor extraction system.

# SECTION 5.0 ENGINEERING CONTROLS / OPERATION AND MAINTENANCE PLAN AND AGREEMENT

The engineering controls consist of SSDS installed in a subset of the off-Property residences within the area of concern. The associated Operation and Maintenance Plan and Agreement require on-going maintenance and annual sampling and reporting to the Ohio EPA for occupied structures with SSDS engineering controls. The Operation and Maintenance Plan also requires implementation of a quarterly occupancy review process, which includes a requirement for response activities (e.g., request for access, sampling, mitigation) if occupancy is indicated. The Operation and Maintenance Plan also requires implementation of a process to gain control within the off-property area of concern, including pursuit of acquisition by City of Dayton of tax delinquent properties within the area of concern that meet certain eligibility criteria, placing existing residences on said acquired properties into the nuisance abatement queue for future demolition, requiring vapor intrusion evaluation and/or mitigation (if necessary) be conducted prior to occupancy of new structures on said acquired properties, and tagging cards maintained by the City of Dayton for properties within the off-property area of concern with a notation that environmental conditions may warrant further evaluation with respect to potential for vapor intrusion.

# SECTION 6.0 RISK MITIGATION MEASURES / RISK MITIGATION PLAN (RMP)

No risk mitigation measures were required to demonstrate compliance with applicable standards on the Property.

# SECTION 7.0 ACTIVITY AND USE LIMITATIONS / ENVIRONMENTAL COVENANT

The remedy includes activity and use limitations (also known as use restrictions) described in an environmental covenant. The activity and use limitations when established will limit the property to commercial or industrial land uses and prohibit groundwater extraction and uses. Further, an activity and use limitation to address the vapor intrusion pathway was included to prevent human occupancy of buildings in Exposure Units 1 and 2, excepting the contiguous existing building (Buildings 1 through 5 and 17), without remedy or demonstration that a remedy is not needed.

# Exhibit 4 Environmental Covenant

## **ENVIRONMENTAL COVENANT**

This Environmental Covenant is entered into by Home Avenue Redevelopment, LLC and the Ohio Environmental Protection Agency ("Ohio EPA") pursuant to Ohio Revised Code ("ORC") §§ 5301.80 to 5301.92 for the purpose of subjecting the Property described herein ("the Property") to the activity and use limitations set forth herein.

This Environmental Covenant requires current and future Property owners to meet certain requirements, including, but not limited to:

- Comply with the activity and use limitations given by paragraph 5 that will restrict the Property to commercial and industrial uses, prohibit extraction and use of groundwater, and subject building occupancy to an obligation of remedying any indoor air issues or otherwise demonstrating compliance with indoor air standards.
- Noncompliance with any activity and use limitation will result in the covenant not to sue issued for the Property by the Director of Ohio EPA to be void on and after the date of the noncompliant use, as described in paragraph 7.
- Provide an annual compliance report to Ohio EPA by September 1<sup>st</sup> of each year, as required by paragraph 9, describing that the Property continues to be used in compliance with the activity and use limitations.
- Give notice to new property owners (also known as "transferees") upon conveyance, as required by paragraph 10, of the activity and use limitations and the recorded location of this Environmental Covenant.
- Notify Ohio EPA within 10 days of each conveyance, as required by paragraph 10, of the property that was conveyed and new owner's contact information.

WHEREAS, Home Avenue Redevelopment, LLC and the City of Dayton have undertaken a voluntary action with respect to the Property under Ohio's Voluntary Action Program

("VAP"), pursuant to ORC Chapter 3746 and Ohio Administrative Code ("OAC") Chapter 3745-300.

WHEREAS, the Property is owned by Home Avenue Redevelopment, LLC; the City of Dayton is not an owner of the Property.

WHEREAS, the voluntary action remedy for the Property includes the activity and use limitations set forth in this Environmental Covenant. Certified Professional Laura Funk, CP286, issued a no further action letter ("NFA Letter") for the Property on December 1, 2015 and submitted the NFA Letter to Ohio EPA ("No. [16NFA647]") with a request for a covenant not to sue.

WHEREAS, the activity and use limitations support the issuance of the NFA Letter and a covenant not to sue for the Property; the limitations protect against exposure to the hazardous substances and petroleum in soil and ground water on or underlying the Property.

WHEREAS, the Property uses or may in the future use an engineering control to comply with applicable standards, as the terms are defined in OAC Chapter 3745-300. Whenever an engineering control is used, an activity and use limitation in this Environmental Covenant requires the engineering control implementation, through an operation and maintenance (O&M) agreement, until it is no longer needed to meet applicable standards. An engineering control that is no longer needed may be modified or terminated in accordance with OAC 3745-300-11 and applicable O&M plan and agreement criteria. The documentation must be submitted to and accepted by Ohio EPA prior to any modification or termination.

WHEREAS, the Property is the subject of an O&M plan and agreement that provide for a central management entity to oversee engineering controls to maintain site protectiveness.

WHEREAS, the NFA Letter's executive summary contains an overview of the voluntary action. The executive summary may be reviewed as an exhibit to the covenant not to sue issued for the Property, recorded in the deed records for the Property in the Montgomery County Recorder's Office. The covenant not to sue and the NFA Letter ([16NFA647]) may also be reviewed, by contacting the Records Management Officer for the Division of Environmental Response and Revitalization, at Ohio EPA's Central Office, 50 West Town Street, Columbus, OH 43216, 614-644-2924, or at Ohio EPA's Southwest District Office at 401 East Fifth Street, Dayton, Ohio 45402 or by contacting Home Avenue

Redevelopment, LLC, 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016, 614-793-8777.

Now therefore, Home Avenue Redevelopment, LLC and Ohio EPA agree to the following:

- 1. <u>Environmental Covenant</u>. This instrument is an environmental covenant developed and executed pursuant to ORC §§ 5301.80 to 5301.92.
- 2. <u>Property</u>. This Environmental Covenant concerns an approximately 54.340-acre tract of real property; identified as Lots 83799 (R72-00111-0003), 83800 (R72-00111-0004), 83801 (R72-00111-0005), 83802 (R72-00111-0006) and 83803 (R72-00111-0007), located at 2701 Home Avenue, Dayton, in Montgomery County, Ohio, and more particularly described in Attachment 1 attached hereto and incorporated by reference herein ("Property").
- 3. Owner. This Property is owned by Home Avenue Redevelopment, LLC ("Owner"), with a place of business located at 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.
- 4. <u>Holder</u>. Pursuant to ORC § 5301.81, the holder of this Environmental Covenant ("Holder") is the Owner listed above.
- 5. <u>Activity and Use Limitations</u>. As part of the voluntary action remedy described in the NFA Letter, Owner hereby imposes and agrees to comply with the following activity and use limitations:
  - A. <u>Limitation for Commercial or Industrial Land Use</u>.

    The Property is limited to commercial or industrial land use, as those terms are defined in OAC Sections 3745-300-08(C)(2)(b) and (c) (effective August 1, 2014), or any combination of those uses.

OAC 3745-300-08(C)(2)(b) defines commercial land use as "land use with potential exposure of adult workers during a business day and potential exposure of adults and children who are customers, patrons, or visitors to commercial facilities during the business day. Commercial land use has potential exposure of adults to dermal contact with soil, inhalation of vapors and particles from soil, ingestion of soil and inhalation of volatile compounds due to vapor

intrusion to indoor air. Generic direct contact standards for commercial land use may not be appropriate for properties where a high frequency of potential exposure to children may occur, such as at schools and day care facilities." Commercial land use includes, without limitation, warehouses, retail establishments, office buildings, hospitals and clinics, religious institutions, hotels, motels and public areas incidental to such use.

OAC 3745-300-08(C)(2)(c) defines industrial land use as "land use with potential exposure of adult workers during a business day and potential exposures of adults and children who are visitors to industrial facilities during the business day. Industrial land use has potential exposure of adults to dermal contact with soil, inhalation of vapors and particles from soil and ingestion of soil and inhalation of volatile compounds due to vapor intrusion to indoor air." Industrial land use includes, without limitation, lumberyards, power plants, manufacturing facilities, assembly plants, non-public airport areas, railroad switching yards, marine port facilities, and public or employee areas incidental to such land use.

# B. Prohibition on Ground Water Extraction and Use.

Ground water underlying the Property shall not be extracted or used for any purpose, potable or otherwise, except for investigation, monitoring or remediation of the ground water, or for dewatering in conjunction with construction or excavation activities or maintenance of subsurface utilities.

# C. <u>Limitation on Building Occupancy – Remedy or Demonstration Obligation.</u>

Prior to human occupancy of any building constructed on the portion of the Property described in Attachment 2, with the exception of existing Buildings 1 through 5 and 17, which are located contiguously to form one structure and shown on Attachment 3, after the recording date of this Environmental Covenant, either: (i) a remedy that eliminates indoor air vapor intrusion exposure to hazardous substances in soil or ground water in excess of applicable standards shall be installed, operated and maintained as an engineering control under an operation and maintenance agreement in accordance with a Covenant Not to Sue issued by the Director of Environmental

Protection pursuant to ORC 3746.12; or (ii) a demonstration attested by a Certified Professional shall be made to Ohio EPA, that the Property complies with applicable standards for the vapor intrusion pathway.

# D. <u>Engineering Control Implementation</u>.

For each engineering control used to meet applicable standards, the control shall be operated and maintained in compliance with an Ohio EPA-approved operation and maintenance plan or agreement applicable to the control. This limitation applies to any engineering control used to meet applicable standards regardless of time, whether put in place before or after the execution of this Environmental Covenant.

Any noncompliant control implementation shall be corrected within the planspecified timeframe or, in case of no specified timeframe, within a reasonable time as determined by Ohio EPA.

For purposes of ORC 3746.05, the Property use shall not be considered in noncompliance with this limitation when the noncompliance is with an engineering control and is (i) corrected within a reasonable time under an operation and maintenance plan or agreement, (ii) returned to compliance by a timeline specified by an Ohio EPA notice of noncompliance, or (iii) cured under a compliance schedule agreement entered into pursuant to ORC 3746.12 with the Ohio EPA director.

An engineering control or its use may be modified or terminated following Ohio EPA approval of a demonstration made, in accordance with OAC 3745-300-11 and applicable operation and maintenance plan and agreement criteria, that supports the control use is no longer needed to comply with applicable standards.

6. Running with the Land. This Environmental Covenant shall be binding upon the Owner, during the time that the Owner owns the Property or any portion thereof, and upon all assigns and successors in interest, including any Transferee, and shall run with the land, pursuant to ORC § 5301.85, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

- 7. Compliance Enforcement. Compliance with this Environmental Covenant may be enforced pursuant to ORC § 5301.91 and other applicable law. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce against any non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA from exercising any authority under applicable law. Pursuant to ORC § 3746.05, if the Property or any portion thereof is put to a use that does not comply with this Environmental Covenant, the covenant not to sue issued for the Property by the Director of Ohio EPA under ORC § 3746.12 is void on and after the date of the commencement of the noncompliant use.
- 8. Rights of Access. Owner hereby grants to Ohio EPA's authorized representatives the right of access to the Property for implementation or enforcement of this Environmental Covenant and shall require such access as a condition of any transfer of the Property or any portion thereof.
- 9. <u>Compliance Reporting</u>. Owner or Transferee, if applicable, shall, on an annual basis, submit to Ohio EPA written documentation verifying that the activity and use limitations set forth herein remain in place and are being complied with. Documentation shall be due to Ohio EPA on September 1<sup>st</sup> of each year beginning the year after the effective date of this Environmental Covenant, unless otherwise directed by Ohio EPA.
- 10. <u>Notice upon Conveyance</u>. Each instrument hereafter conveying any interest in the Property or any portion thereof shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE MONTGOMERY COUNTY RECORDER ON \_\_\_\_\_, 201\_\_, IN [DOCUMENT \_\_\_\_, or BOOK\_\_\_, PAGE \_\_\_]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS: LIMITATION FOR COMMERCIAL OR INDUSTRIAL LAND USES; PROHIBITION ON GROUND WATER EXTRACTION AND USE; AND LIMITATION ON BUILDING OCCUPANCY – REMEDY OR DEMONSTRATION OBLIGATION.

A. <u>Limitation for Commercial or Industrial Land Use</u>.

The Property is limited to commercial or industrial land use, as those terms are defined in OAC Sections 3745-300-08(C)(2)(b) and (c) (effective August 1, 2014), or any combination of those uses.

OAC 3745-300-08(C)(2)(b) defines commercial land use as "land use with potential exposure of adult workers during a business day and potential exposure of adults and children who are customers, patrons, or visitors to commercial facilities during the business day. Commercial land use has potential exposure of adults to dermal contact with soil, inhalation of vapors and particles from soil, ingestion of soil and inhalation of volatile compounds due to vapor intrusion to indoor air. Generic direct contact standards for commercial land use may not be appropriate for properties where a high frequency of potential exposure to children may occur, such as at schools and day care facilities." Commercial land use includes, without limitation, warehouses, retail establishments, office buildings, hospitals and clinics, religious institutions, hotels, motels and public areas incidental to such use.

OAC 3745-300-08(C)(2)(c) defines industrial land use as "land use with potential exposure of adult workers during a business day and potential exposures of adults and children who are visitors to industrial facilities during the business day. Industrial land use has potential exposure of adults to dermal contact with soil, inhalation of vapors and particles from soil and ingestion of soil and inhalation of volatile compounds due to vapor intrusion to indoor air." Industrial land use includes, without limitation, lumberyards, power plants, manufacturing facilities, assembly plants, non-public airport areas, railroad switching yards, marine port facilities, and public or employee areas incidental to such land use.

# B. Prohibition on Ground Water Extraction and Use.

Ground water underlying the Property shall not be extracted or used for any purpose, potable or otherwise, except for investigation, monitoring or remediation of the ground water, or for dewatering in conjunction with construction or excavation activities or maintenance of subsurface utilities.

# C. <u>Limitation on Building Occupancy – Remedy or Demonstration Obligation.</u>

Prior to human occupancy of any building constructed on the portion of the Property described in Attachment 2, with the exception of existing Buildings 1 through 5 and 17, which are located contiguously to form one structure and shown on Attachment 3, after the recording date of this Environmental Covenant, either: (i) a remedy that eliminates indoor air vapor intrusion exposure to hazardous substances in soil or ground water in excess of applicable standards shall be installed, operated and maintained as an engineering control under an operation and maintenance agreement in accordance with a Covenant Not to Sue issued by the Director of Environmental Protection pursuant to ORC 3746.12; or (ii) a demonstration attested by a Certified Professional shall be made to Ohio EPA, that the Property complies with applicable standards for the vapor intrusion pathway.

# D. <u>Engineering Control Implementation</u>.

For each engineering control used to meet applicable standards, the control shall be operated and maintained in compliance with an Ohio EPA-approved operation and maintenance plan or agreement applicable to the control. This limitation applies to any engineering control used to meet applicable standards regardless of time, whether put in place before or after the execution of this Environmental Covenant.

Any noncompliant control implementation shall be corrected within the planspecified timeframe or, in case of no specified timeframe, within a reasonable time as determined by Ohio EPA.

For purposes of ORC 3746.05, the Property use shall not be considered in noncompliance with this limitation when the noncompliance is with an engineering control and is (i) corrected within a reasonable time under an operation and maintenance plan or agreement, (ii) returned to compliance by a timeline specified by an Ohio EPA notice of noncompliance, or (iii) cured under a compliance schedule agreement entered into pursuant to ORC 3746.12 with the Ohio EPA director.

An engineering control or its use may be modified or terminated following Ohio EPA approval of a demonstration made, in accordance with OAC

3745-300-11 and applicable operation and maintenance plan and agreement criteria, that supports the control use is no longer needed to comply with applicable standards.

Owner or Transferee, if applicable, shall notify Ohio EPA and Home Avenue Redevelopment, LLC within ten (10) days after each conveyance of an interest in the Property or any portion thereof. The notice shall include the name, address, and telephone number of the Transferee, a copy of the deed or other documentation evidencing the conveyance, and a survey map that shows the boundaries of the property being transferred.

- 11. <u>Representations and Warranties</u>. Owner hereby represents and warrants to the other signatories hereto:
  - A. that the Owner is the sole owner of the Property;
  - B. that the Owner holds fee simple title to the Property and that the Owner conducted a current title search that shows that the Property is not subject to any interests or encumbrances that conflict with the activity and use limitations set forth in this Environmental Covenant:
  - C. that the Owner has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;
  - that this Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owner is a party or by which Owner may be bound or affected;
  - E. that the Owner has identified all other persons that own an interest in or hold an encumbrance on the Property, and, if applicable, notified such persons of the Owner's intention to enter into this Environmental Covenant.
- 12. <u>Amendment or Termination</u>. This Environmental Covenant may be amended or terminated by consent of all of the following: the Owner, or a Transferee, if applicable; and the Director of the Ohio EPA, pursuant to ORC §§ 5301.82 and 5301.90 and other applicable law. The term, "Amendment," as used in this Environmental

Covenant, shall mean any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations so long as there is at least one limitation remaining. The term, "Termination," as used in this Environmental Covenant, shall mean the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

This Environmental Covenant may be amended or terminated only by a written instrument duly executed by the Director of Ohio EPA and by the Owner or Transferee, if applicable, of the Property or any portion thereof. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, the Owner or Transferee, if applicable, shall file such instrument for recording with the Montgomery County Recorder's Office, and shall provide a file- and date-stamped copy of the recorded instrument to Ohio EPA.

- 13. <u>Severability</u>. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.
- 14. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Ohio.
- 15. <u>Recordation</u>. Within thirty (30) days after the date of the final required signature, Owner shall file this Environmental Covenant for recording, in the same manner as a deed to the Property, with the Montgomery County Recorder's Office.
- 16. <u>Effective Date</u>. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the Montgomery County Recorder's Office.
- 17. <u>Distribution of Environmental Covenant</u>. Owner shall distribute a file- and date-stamped copy of the recorded Environmental Covenant to: Ohio EPA, Montgomery County, and the City of Dayton, Ohio.
- 18. <u>Notice</u>. Unless otherwise notified in writing by any party hereto or Ohio EPA, any document or communication required by this Environmental Covenant shall be submitted to:

As to Ohio EPA:

Ohio EPA – Central Office
Division of Environmental Response and Revitalization
50 West Town Street
Columbus, Ohio 43216

Attn.: DERR Records Management Officer, regarding 16NFA647

Or, send electronically to: records@epa.ohio.gov

And

Ohio EPA – Southwest District Office 401 East Fifth Street Dayton, Ohio 45402 Attn.: DERR Site Coordinator for 16NFA647

# As to Owner:

Home Avenue Redevelopment, LLC 6397 Emerald Parkway, Suite 200 Dublin, Ohio 43016

The undersigned represents and certifies that the undersigned is authorized to execute this Environmental Covenant.

#### IT IS SO AGREED:

Kristie Fox
Notary Public, State of Ohio
My Commission Expires April 20, 2020

seal this 19th day of June, 2017.

## OHIO ENVIRONMENTAL PROTECTION AGENCY

CARB-			
Craig W. Butler, Direct	or		
State of Ohio	)	-	
County of Franklin	)	SS:	

Before me, a notary public, in and for Franklin County, Ohio, personally appeared Craig W. Butler, the Director of Ohio EPA, who acknowledged to me that he did execute the foregoing instrument on behalf of Ohio EPA.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official day of OCTOBER



This instrument was prepared by:

Christopher Jones Calfee, Halter & Griswold LLP 1200 Huntington Center 41 South High Street Columbus, OH 43215-3465

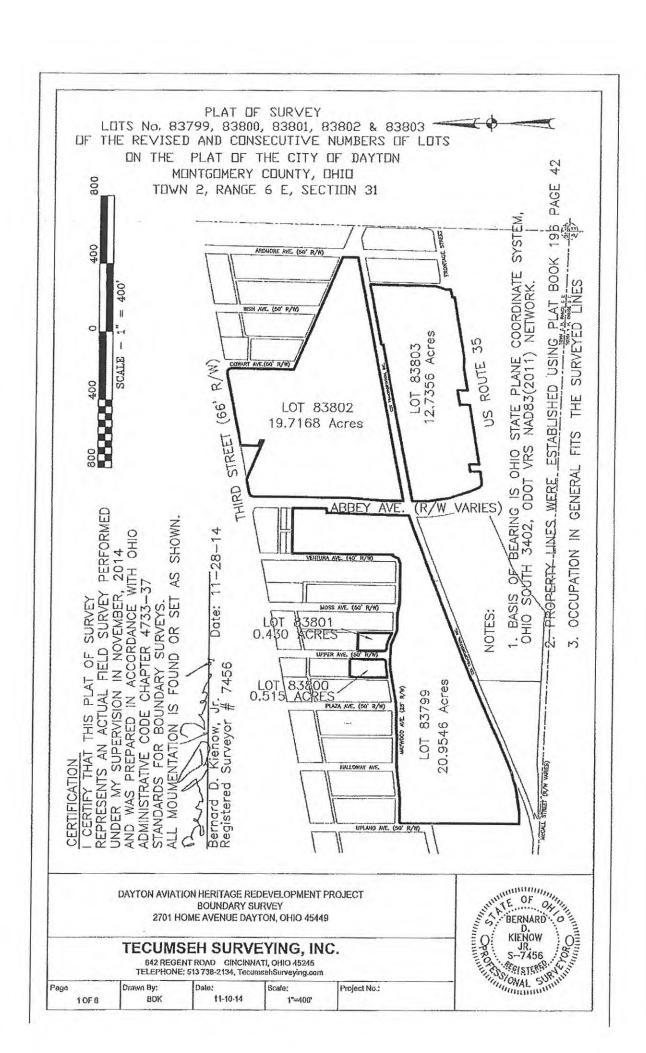
Clint R. White Ohio EPA - Legal Office 50 West Town Street Columbus, OH 43215

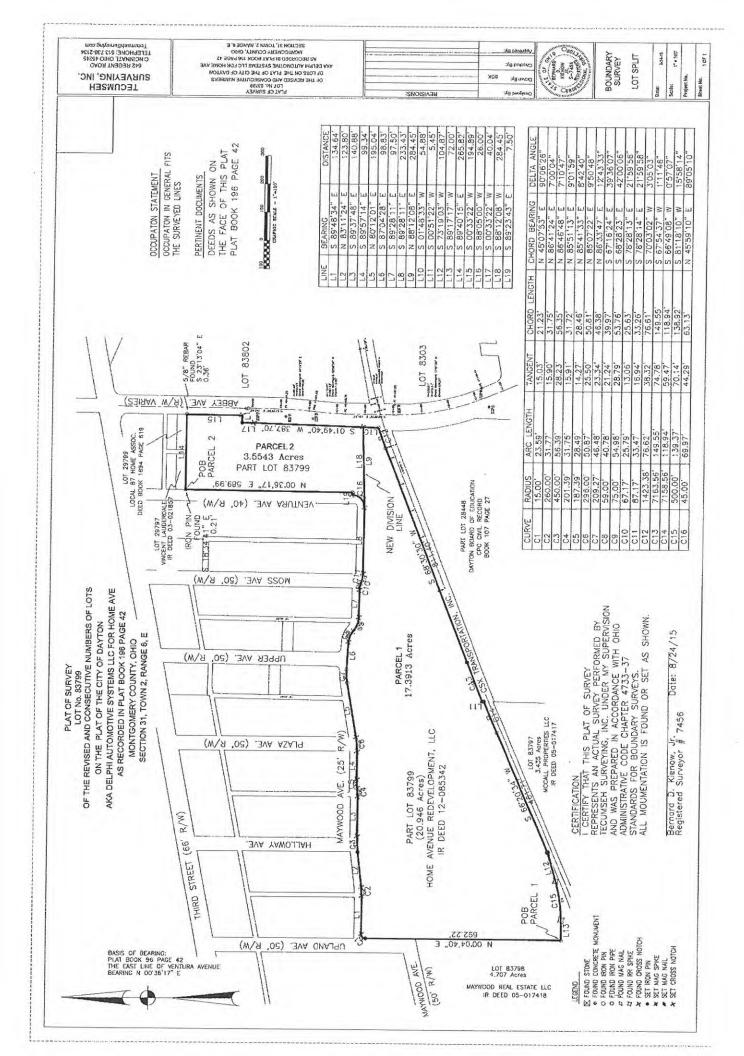
CHARMA DIANE CASTEEL

NOTARY PUBLIC
STATE OF OHIO
MY COMMISSION EXPIRES

Environmental Covenant Page 14

# Attachment 1





#### Legal Description Parcel 1

Situate in the City of Dayton, Section 31, Town 2, Range 6, E, Montgomery County, Ohio and being part of lot 83779 of the revised and consecutive number of lots on the Plat of the City of Dayton, AKA Delphi Automotive Systems LLC for Home Avenue as recorded in Plat Book 196 Page 42, as conveyed to Home Avenue Redevelopment LLC as recorded in IR Deed12-085342 and being more particularly described as follows;

Beginning at an iron pin with a cap stamped Woolperts found at the southwest corner of said lot 83799;

Thence with the west line of said lot 83799 and becoming the east right of way line of Upland Avenue (50' R/W), N 00°04'40" E for a distance of 692.22 feet to an iron pin set on the south right of way line of Maywood Avenue (25' R/W);

Thence along the south right of way line of said Maywood Avenue the following 19 courses;

- On a curve to the right, having a delta angle of 90°06'26", with a radius of 15.00 feet, for an arc length of 23.59 feet to a cross notch set, the chord for said curve bears N 45°07'53" E for a chord length of 21.23 feet;
- 2. S 89°48'34" E for a distance of 134.64 feet to a cross notch found;
- 3. On a curve to the left, having a delta angle of 07°00'04", with a radius of 260.00 feet, for an arc length of 31.77 feet to a cross notch found, the chord for said curve bears N 86°41'24" E for a chord length of 31.75 feet;
- 4. N 83°11'24" E for a distance of 123.80 feet to an iron pin set;
- 5. On a curve to the right, having a delta angle of 07°10'47", with a radius of 450.00 feet, for an arc length of 56.39 feet to a cross notch found, the chord for said curve bears N 86°46'48" E for a chord length of 56.35 feet;
- 6. S 89°37'48" E for a distance of 140.88 feet to a cross notch found;
- 7. On a curve to the left, having a delta angle of 09°01'59", with a radius of 201.39 feet, for an arc length of 31.75 feet to a cross notch found, the chord for said curve bears N 85°51'13" E for a chord length of 31.72 feet;
- 8. With a reverse curve to the right, having a delta angle of 08°42'40", with a radius of 187.39 feet, for an arc length of 28.49 feet to a cross notch found, the chord for said curve bears N 85°41'33" E for a chord length of 28.46 feet;
- 9. S 89°57'14" E for a distance of 99.34 feet to a cross notch found;
- 10. On a curve to the left, having a delta angle of 09°50'48", with a radius of 296.00 feet, for an arc length of 50.87 feet to a cross notch found, the chord for said curve bears N 85°07'22" E for a chord length of 50.81 feet;
- 11. N 80°12'01" E for a distance of 195.04 feet to an iron pin with a cap stamped Woolpert found;

- 12. On a curve to the right, having a delta angle of 12°43'33", with a radius of 209.27 feet, for an arc length of 46.48 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears N 86°33'47" E for a chord length of 46.38 feet;
- 13. S 87°04'28" E for a distance of 98.83 feet to a cross notch found;
- 14. On a curve to the right, having a delta angle of 39°36'07", with a radius of 59.00 feet, for an arc length of 40.78 feet to a cross notch found, the chord for said curve bears S 67°16'24" E for a chord length of 39.97 feet;
- 15. With a reverse curve to the left, having a delta angle of 42°00'06", with a radius of 75.00 feet, for an arc length of 54.98 feet to a cross notch found, the chord for said curve bears S 68°28'23" E for a chord length of 53.76 feet;
- 16. S 89°28'11" E for a distance of 97.50 feet to a cross notch found;
- 17. On a curve to the right, having a delta angle of 21°59'56", with a radius of 67.17 feet, for an arc length of 25.79 feet to a cross notch found, the chord for said curve bears S 78°28'13" E for a chord length of 25.63 feet;
- 18. With a reverse curve to the left, having a delta angle of 21°59'58", with a radius of 87.17 feet, for an arc length of 33.47 feet to a cross notch found, the chord for said curve bears S 78°28'14" E for a chord length of 33.26 feet;
- 19. S 89°28'11" E for a distance of 233.43 feet to a cross notch found;

Thence on a new division line, N 88°12'08" E for a distance of 284.45 feet to a cross notch found on the east line of said lot 83799 and being the west right of way line of Abbey Avenue (R/W varies);

Thence with the east line of said lot 83799 and the west line of said Abbey Avenue, S 01°48'33" W for a distance of 54.88 feet to an iron pin with a cap stamped Woolpert found on the southerly line of said lot 83799 and being the northerly line of CSX Transportation, Inc.;

Thence with the southerly line of said lot 83799 and the northerly line of said CSX Transportation, Inc. the following 9 courses;

- On a curve to the left, having a delta angle of 03°05'03", with a radius of 1423.38 feet, for an arc length of 76.62 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears S 70°03'02" W for a chord length of 76.61 feet;
- 2. S 68°30'30" W for a distance of 811.40 feet to an iron pin set;
- 3. On a curve turning to the left, having a delta angle of 01°11'46", with a radius of 7163.56 feet, for an arc length of 149.55 feet to an iron pin set, the chord for said curve bears S 67°54'37" W for a chord length of 149.55 feet;
- 4. S 00°51'22" W for a distance of 5.45 feet to an iron pin set;

- 5. On a curve to the left, having a delta angle of 00°57'07", with a radius of 7158.56 feet, for an arc length of 118.94 feet to an iron pin with a cap stamped Woolpert, the chord for said curve bears S 66°49'08" W for a chord length of 118.94 feet;
- 6. S 66°20'34" W for a distance of 461.71 feet to a mag nail set;
- 7. S 73°19'03" W for a distance of 104.87 feet to a railroad spike found;
- 8. On a curve to the right, having a delta angle of 15°58'14", with a radius of 500.00 feet, for an arc length of 139.37 feet to a rail road spike found, the chord for said curve bears S 81°18'10" W for a chord length of 138.92 feet;
- 9. S 89°17'17" W for a distance of 72.00 feet to the point of beginning, containing 17.3913 acres more or less and being subject to all right of ways, easements and restrictions of record.

Bearings in this description are based on Plat Book 196 page 42 of the Montgomery County Records. As recorded in the Montgomery County Engineer's Record of Land Surveys in Volume 2015 Page 0288.

This description is based on an actual survey performed by Tecumseh Surveying Inc. in November 2014 under my supervision.

Bernard D. Kienow, Jr.

PS 7456



#### Legal Description Parcel 2

Situate in the City of Dayton, Section 31, Town 2, Range 6, E, Montgomery County, Ohio and being part of lot 83779 of the revised and consecutive number of lots on the Plat of the City of Dayton, AKA Delphi Automotive Systems LLC for Home Avenue as recorded in Plat Book 196 Page 42, as conveyed to Home Avenue Redevelopment LLC as recorded in IR Deed12-085342 and being more particularly described as follows;

Beginning at a northwest corner of said lot 83799 and being on the east right of way line of Ventura Avenue (40; R/W), witness an iron pin with a cap stamped LJB found S 18°34'41" E at a distance of 0.21 feet;

Thence with the north line of said lot 83799, S 89°40'15" E for a distance of 265.82 feet to the northeast corner of said lot 83799 and being on the west right of way line of Abbey Avenue (R/W varies), witness an 5/8" rebar found S 23°13'04" E at a distance of 0.36 feet;

Thence with the east line of said lot 83799 and being the west right of way line of said Abbey Avenue the following 4 courses;

- 1. S 00°33'22" W for a distance of 194.89 feet to a cross notch found;
- 2. S 88°05'00" W for a distance of 26.00 feet to an iron pin set;
- 3. S 00°33'22" W for a distance of 40.04 feet to a cross notch found:
- 4. S 01°49'40" W for a distance of 387.70 feet to a cross notch found;

Thence on a new division line, S 88°12'08" W for a distance of 284.45 feet to a cross notch found on the south right of way line of said Ventura Avenue;

Thence along the south right of way and becoming the east right of way of said Ventura Avenue the following 3 courses;

- On a curve to the left, having a delta angle of 89°05'10", with a radius of 45.00 feet, for an arc length
  of 69.97 feet to a cross notch found, the chord for said curve bears N 45°59'10" E for a chord length
  of 63.13 feet;
- 2. S 89°23'43" E for a distance of 7.50' feet to an iron pin with a cap stamped Woolpert found;
- 3. N 00°36'17" E for a distance of 589.99 feet to the point of beginning, containing 3.5543 acres more or less and being subject to all right of ways, easements and restrictions of record.

Bearings in this description are based on Plat Book 196 page 42 of the Montgomery County Records. As recorded in the Montgomery County Engineer's Record of Land Surveys in Volume 2015 Page 0288.

This description is based on an actual survey performed by Tecumseh Surveying Inc. in November 2015 under my supervision.

Bernard D. Kienow, Jr. PS 7456



## Lot 83800 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83800 of the revised and consecutive number of lots on the Plat of the City of Dayton, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the southwest corner of said lot 83800;

Thence N 00°51'22" E for a distance of 222.05 feet;

Thence S 89°20'06" E for a distance of 105.04 feet;

Thence S 00°51'22" W for a distance of 195.36 feet;

Thence on a curve turning to the right with a radius of 15.00feet, for an arc length of 23.80feet, the chord for said curve bears S 46°18'39" W for a chord length of 21.38feet;

Thence with a reverse curve turning to the left with a radius of 234.27feet, for an arc length of 47.34feet, the chord for said curve bears S 85°59'23" W for a chord length of 47.26feet;

Thence S 80°12'01" W for a distance of 43.46 feet to the point of beginning, containing 0.5149 acres more or less and being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Kienow, Jr.

P.S. 7456



## Lot 83801 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83801 of the revised and consecutive number of lots on the Plat of the City of Dayton,, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the northwest corner of said lot 83801;

Thence S 89°18'07" E for a distance of 105.06 feet;

Thence S 00°51'22" W for a distance of 202.14 feet;

Thence with a curve turning to the right with a radius of 50.00feet, for an arc length of 16.65feet, the chord for said curve bears N 57°00'24" W for a chord length of 16.57feet;

Thence with a reverse curve turning to the left with a radius of 84.00feet, for an arc length of 58.06feet, the chord for said curve bears N 67°16'20" W for a chord length of 56.91feet;

Thence N 87°04'28" W for a distance of 23.77 feet;

Thence on a curve turning to the right with a radius of 15.00feet, for an arc length of 23.02feet, the chord for said curve bears N 43°06'34" W for a chord length of 20.83feet;

Thence N 00°51'22" E for a distance of 155.99 feet to the point of beginning, containing 0.4301 acres more or less and being subject to all easements, restrictions and right of ways of record

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Kienow, Jr.

P.S. 7456



## Lot 83802 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83802 of the revised and consecutive number of lots on the Plat of the City of Dayton,, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the southwest corner of said lot 83802;

Thence N 00°33'22" E for a distance of 120.39 feet

Thence N 04°53'26" B for a distance of 198.47 feet;

Thence N 00°33'22" E for a distance of 562.09 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 34.24feet, the chord for said curve bears N 39°47'25" E for a chord length of 31.62feet;

Thence N 79°01'28" E for a distance of 83.24 feet;

Thence S 67°07'18" E for a distance of 246.35 feet;

Thence N 01°05'04" E for a distance of 17.28 feet;

Thence N 67°07'55" W for a distance of 33.68 feet;

Thence N 01°04'25" E for a distance of 103.87 feet;

Thence N 79°01'28" E for a distance of 432.36 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 44.56feet, the chord for said curve bears S 49°54'51" E for a chord length of 38.89feet;

Thence S 01°08'49" W for a distance of 367.98 feet;

Thence S 67°07'18" E for a distance of 717.26 feet;

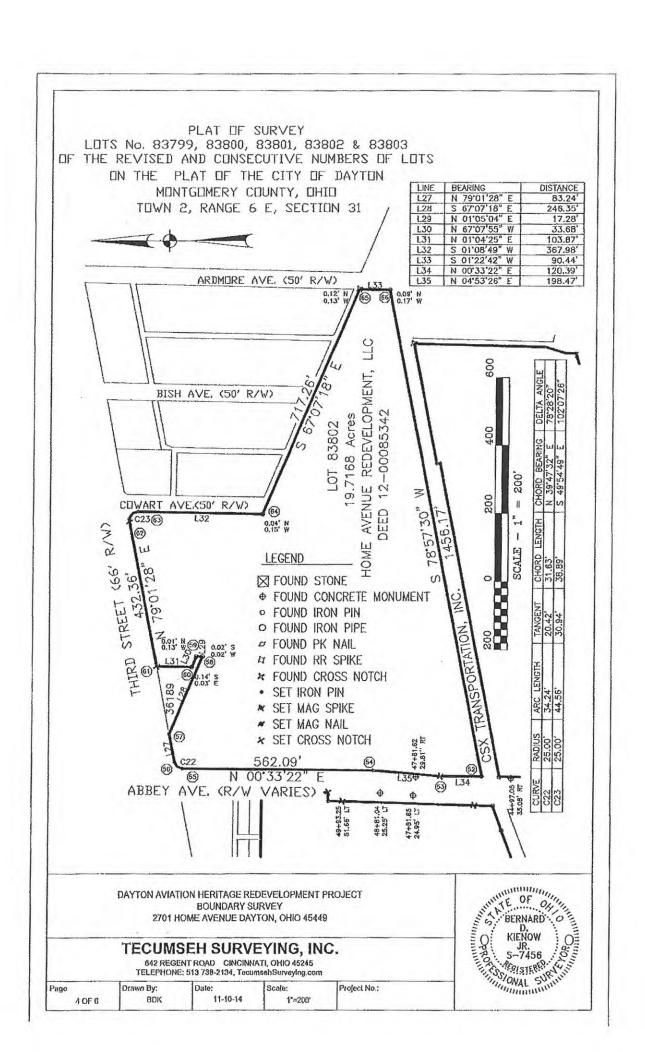
Thence S 01°22'42" W for a distance of 90.44 feet;

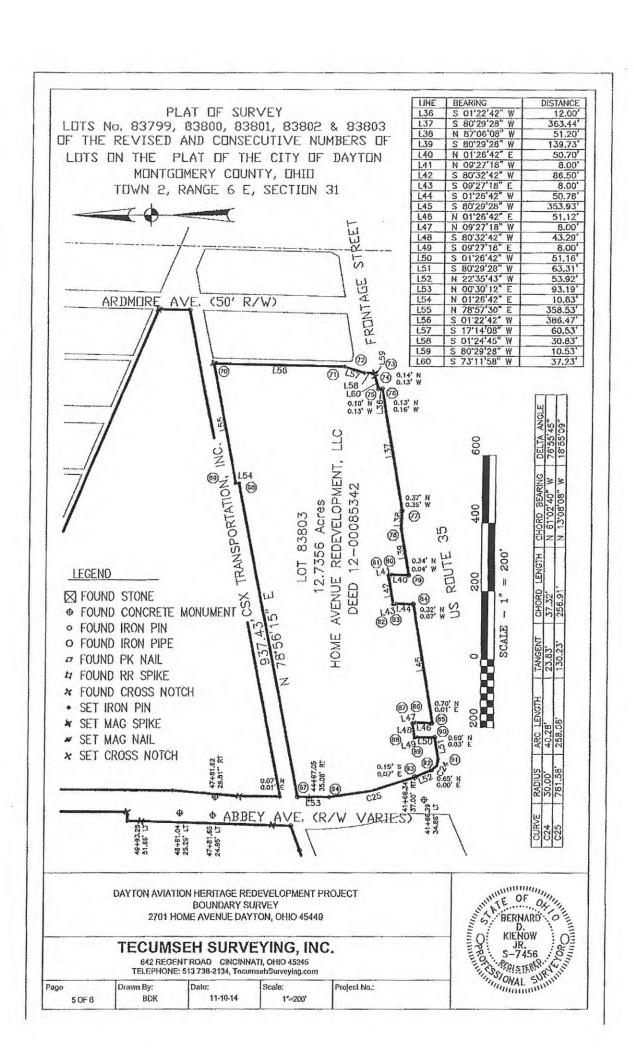
Thence S 78°57'30" W for a distance of 1456.16 feet to the point of beginning, containing 19.7168 acres more or less and being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Klenow, Jr. P.S. 7456







POINT#		EAST	POINT#		EAST
1	641042.226	1477424,706	52	641744.345	1479318.458
2	641734.442	1477425.645	53	641864.733	1479319.627
3	641749.422	1477440.694	54	642062.480	1479336.547
4	641748.974	1477575.333	55	642624.544	1479342,002
5	641750.807	1477607.030	56	642648.844	1479362.243
6	641765.487	1477729,957	57	642664.692	1479443.961
7	641768.652	1477786.221	58	642568.917	1479670.931
8	641767.743	1477927.098	59	642586.194	1479671.258
9	641770.036	1477958.732	60	642599.283	1479640.225
10	641772.174	1477987.114	61	642703.134	1479642.171
11	641772.094	1478086.454	62	642785.451	1480066.623
12	641776.413	1478137,078	63	642760,408	1480096.378
13	641809.610	1478329.272	64	642392.501	1480089.012
14	641812.391	1478375,573	65	642113.648	1480749.847
15	641807.347	1478474.274	66	642023.234	1480747.671
16	641791.904	1478511.144	67	641692.573	1479317.971
17	641772.178	1478561.151	68	641872.447	1480237,983
18	641771.276	1478658.647	69	641883.073	1480238,251
19	641766.153	1478683.762	70	641951.740	1480590.144
20	641759.504	1478716.355	71	641565.382	1480580.848
21	641757.344	1478949.775	72	641507.570	1480562.913
22	641801.209	1478995.176	73	641476.749	1480562.153
23	641801.129	1479002.676	74	641475.010	1480551,768
24	642391.087	1479008.903	75	641464.249	1480516.127
25	642389.559	1479274.719	76	641452.252	1480515.838
26	642194.679	1479272.827	77	641392.212	1480157.392
27	642193.809	1479246.842	78	641394.800	1480106.257
28	642153.771	1479246.453	79	641371.717	1479968.447
29	641766.268	1479234.087	80	641422.400	1479969.726
30	641711.416	1479232.354	81	641430.292	1479968.412
31	641685.276	1479160.341	82	641416.082	1479883.087
32	641388.007	1478405.357	83	641408.191	1479884.401
33	641331.768	1478266.784	84	641357.427	1479883.120
34	641326.318	1478266.703	85_	641298,958	1479534.053
35	641279.527	1478157.397	86	641350.061	1479535.342
36	641094.232	1477734,458	87	641357.953	1479534.028
37	641064.127	1477634.002	88	641350.841	1479491.326
38	641043.120	1477496.680	89	641342.950	1479492.641
39	641826.807	1478282.189	90	641291.806	1479491,350
40	642048.876	1478285.507	91	641281.347	1479428.910
41	642047,656	1478390.540	92	641299.416	1479396.254
42	641852.318	1478387.621	93	641349.197	1479375.537
43	641837.549	1478372.160	94	641599.384	1479317.152
44	641834.244	1478372.100	U.T.	011000.004	11/001/1102
45	642004.703	1478439.908			
46	642003,423	1478544.960			
47	641801.306	1478541.940			
	641810.329	1478528.042			
48	641832,316	1478475.551			
50	641833.526	1478451,810			
51	641848.731	1478437.577			

DAYTON AVIATION HERITAGE REDEVELOPMENT PROJECT BOUNDARY SURVEY 2701 HOME AVENUE DAYTON, OHIO 45449

TECUMSEH SURVEYING, INC. 642 REGENT ROAD CINCINNATI, OHIO 45245 TELEPHONE; 513 738-2134, TecumsehSurveying.com

Page	Drawn By:	Date:	Scale:	Project No.:
6 OF 6	BDK	11-10-14	1"=200"	



#### Lot \$3803 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83803 of the revised and consecutive number of lots on the Plat of the City of Dayton, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the northwest corner of said lot 83803;

Thence N 01°26'42" E for a distance of 10.63 feet;
Thence N 78°57'30" E for a distance of 358.53 feet;
Thence S 01°22'42" W for a distance of 386.47 feet;
Thence S 17°14'08" W for a distance of 60.53 feet;
Thence S 01°24'45" W for a distance of 30.83 feet;
Thence S 80°29'28" W for a distance of 10.53 feet;
Thence S 73°11'58" W for a distance of 37.23 feet;
Thence S 01°22'42" W for a distance of 12.00 feet;
Thence S 80°29'28" W for a distance of 363.44 feet;
Thence S 80°29'28" W for a distance of 51.20 feet;
Thence S 80°29'28" W for a distance of 139.73 feet;
Thence N 87°06'08" W for a distance of 139.73 feet;
Thence N 01°26'42" E for a distance of 50.70 feet;

Thence N 78°56'15" E for a distance of 937.43 feet;

Thence S 09°27'18" E for a distance of 8.00 feet;

Thence N 09°27'18" W for a distance of 8.00 feet;

Thence S 80°32'42" W for a distance of 86,50 feet;

Thence S 01°26'42" W for a distance of 50,78 feet;

Thence S 80°29'28" W for a distance of 353.93 feet;

Thence N 01°26'42" E for a distance of 51.12 feet;

Thence N 09°27'18" W for a distance of 8.00 feet;

Thence S 80°32'42" W for a distance of 43.29 feet;

Thence S 09°27'18" E for a distance of 8.00 feet;

Thence S 01°26'42" W for a distance of 51.16 feet;

Thence S 80°29'28" W for a distance of 63.31 feet;

Thence on a curve turning to the right with a radius of 30,00feet, for an arc length of 40.28 feet, the chord for said curve bears N 61°03'08" W for a chord length of 37.32 feet;

Thence N 22°35'43" W for a distance of 53.92 feet;

Thence on a curve turning to the right with a radius of 781.58feet, for an arc length of 258.08 feet, the chord for said curve bears N 13°08'08" W for a chord length of 256,91 feet;

Thence N 00°30'12" E for a distance of 93.20 feet to the point of beginning, containing 12.7356 acres more or lessand being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

P.S. 7456



Environmental Covenant Page 15

### Attachment 2

#### Lot 83802 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83802 of the revised and consecutive number of lots on the Plat of the City of Dayton,, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the southwest corner of said lot \$3802;

Thence N 00°33'22" E for a distance of 120.39 feet

Thence N 04°53'26" B for a distance of 198.47 feet;

Thence N 00°33'22" E for a distance of 562.09 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 34.24feet, the chord for said curve bears N 39°47′25″ E for a chord length of 31.62feet;

Thence N 79°01'28" E for a distance of 83.24 feet;

Thence S 67°07'18" E for a distance of 246.35 feet;

Thence N 01°05'04" E for a distance of 17.28 feet;

Thence N 67°07'55" W for a distance of 33.68 feet;

Thence N 01°04'25" B for a distance of 103.87 feet;

Thence N 79°01'28" E for a distance of 432.36 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 44.56feet, the chord for said curve bears S 49°54'51" E for a chord length of 38.89feet;

Thence S 01°08'49" W for a distance of 367.98 feet;

Thence S 67°07'18" E for a distance of 717.26 feet;

Thence S 01°22'42" W for a distance of 90.44 feet;

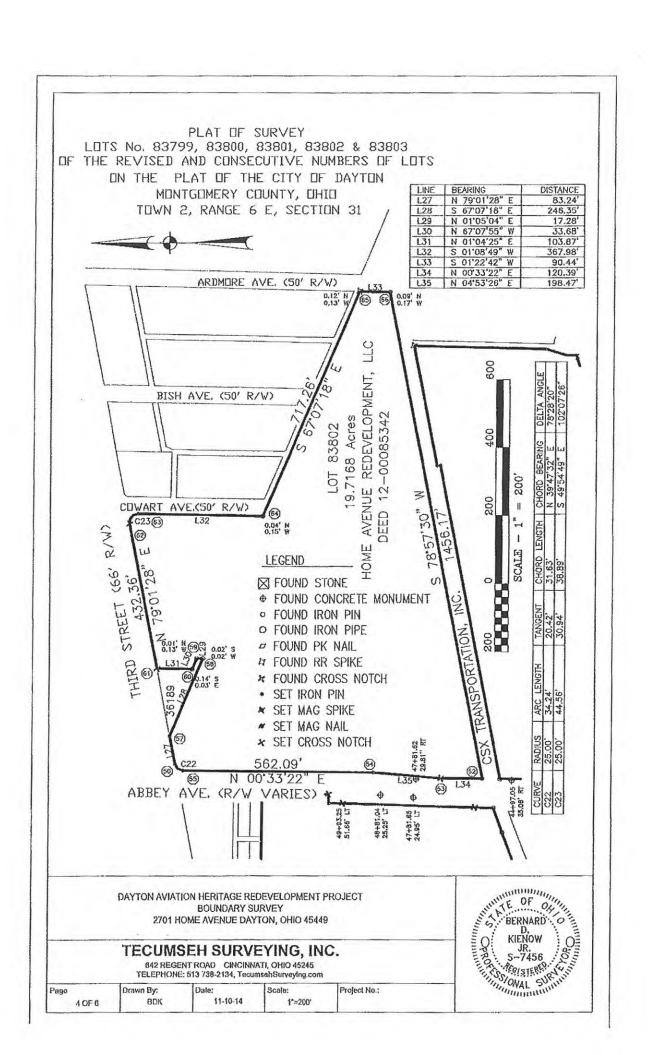
Thence S 78°57'30" W for a distance of 1456.16 feet to the point of beginning, containing 19.7168 acres more or less and being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Kienow, Jr. P.S. 7456



BERNARD OF SIENOW ASSETS OF STREET



#### Legal Description Parcel 1

Situate in the City of Dayton, Section 31, Town 2, Range 6, E, Montgomery County, Ohio and being part of lot 83779 of the revised and consecutive number of lots on the Plat of the City of Dayton, AKA Delphi Automotive Systems LLC for Home Avenue as recorded in Plat Book 196 Page 42, as conveyed to Home Avenue Redevelopment LLC as recorded in IR Deed12-085342 and being more particularly described as follows;

Beginning at an iron pin with a cap stamped Woolperts found at the southwest corner of said lot 83799;

Thence with the west line of said lot 83799 and becoming the east right of way line of Upland Avenue (50' R/W), N 00°04'40" E for a distance of 692.22 feet to an iron pin set on the south right of way line of Maywood Avenue (25' R/W);

Thence along the south right of way line of said Maywood Avenue the following 19 courses;

- On a curve to the right, having a delta angle of 90°06′26", with a radius of 15.00 feet, for an arc length of 23.59 feet to a cross notch set, the chord for said curve bears N 45°07′53" E for a chord length of 21.23 feet;
- 2. S 89°48'34" E for a distance of 134.64 feet to a cross notch found;
- On a curve to the left, having a delta angle of 07°00'04", with a radius of 260.00 feet, for an arc length of 31.77 feet to a cross notch found, the chord for said curve bears N 86°41'24" E for a chord length of 31.75 feet;
- 4. N 83°11'24" E for a distance of 123.80 feet to an iron pin set;
- 5. On a curve to the right, having a delta angle of 07°10'47", with a radius of 450.00 feet, for an arc length of 56.39 feet to a cross notch found, the chord for said curve bears N 86°46'48" E for a chord length of 56.35 feet;
- 6. S 89°37'48" E for a distance of 140.88 feet to a cross notch found;
- 7. On a curve to the left, having a delta angle of 09°01'59", with a radius of 201.39 feet, for an arc length of 31.75 feet to a cross notch found, the chord for said curve bears N 85°51'13" E for a chord length of 31.72 feet;
- 8. With a reverse curve to the right, having a delta angle of 08°42'40", with a radius of 187.39 feet, for an arc length of 28.49 feet to a cross notch found, the chord for said curve bears N 85°41'33" E for a chord length of 28.46 feet;
- 9. S 89°57'14" E for a distance of 99.34 feet to a cross notch found;
- 10. On a curve to the left, having a delta angle of 09°50'48", with a radius of 296.00 feet, for an arc length of 50.87 feet to a cross notch found, the chord for said curve bears N 85°07'22" E for a chord length of 50.81 feet;
- 11. N 80°12'01" E for a distance of 195.04 feet to an iron pin with a cap stamped Woolpert found;

- 12. On a curve to the right, having a delta angle of 12°43'33", with a radius of 209.27 feet, for an arc length of 46.48 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears N 86°33'47" E for a chord length of 46.38 feet;
- 13. S 87°04'28" E for a distance of 98.83 feet to a cross notch found;
- 14. On a curve to the right, having a delta angle of 39°36'07", with a radius of 59.00 feet, for an arc length of 40.78 feet to a cross notch found, the chord for said curve bears S 67°16'24" E for a chord length of 39.97 feet;
- 15. With a reverse curve to the left, having a delta angle of 42°00'06", with a radius of 75.00 feet, for an arc length of 54.98 feet to a cross notch found, the chord for said curve bears S 68°28'23" E for a chord length of 53.76 feet;
- 16. S 89°28'11" E for a distance of 97.50 feet to a cross notch found;
- 17. On a curve to the right, having a delta angle of 21°59'56", with a radius of 67.17 feet, for an arc length of 25.79 feet to a cross notch found, the chord for said curve bears S 78°28'13" E for a chord length of 25.63 feet;
- 18. With a reverse curve to the left, having a delta angle of 21°59'58", with a radius of 87.17 feet, for an arc length of 33.47 feet to a cross notch found, the chord for said curve bears S 78°28'14" E for a chord length of 33.26 feet;
- 19. S 89°28'11" E for a distance of 233.43 feet to a cross notch found;

Thence on a new division line, N 88°12'08" E for a distance of 284.45 feet to a cross notch found on the east line of said lot 83799 and being the west right of way line of Abbey Avenue (R/W varies);

Thence with the east line of said lot 83799 and the west line of said Abbey Avenue, S 01°48'33" W for a distance of 54.88 feet to an iron pin with a cap stamped Woolpert found on the southerly line of said lot 83799 and being the northerly line of CSX Transportation, Inc.;

Thence with the southerly line of said lot 83799 and the northerly line of said CSX Transportation, Inc. the following 9 courses;

- On a curve to the left, having a delta angle of 03°05'03", with a radius of 1423.38 feet, for an arc length of 76.62 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears S 70°03'02" W for a chord length of 76.61 feet;
- 2. S 68°30'30" W for a distance of 811.40 feet to an iron pin set;
- 3. On a curve turning to the left, having a delta angle of 01°11'46", with a radius of 7163.56 feet, for an arc length of 149.55 feet to an iron pin set, the chord for said curve bears S 67°54'37" W for a chord length of 149.55 feet;
- 4. S 00°51'22" W for a distance of 5.45 feet to an iron pin set;

- 5. On a curve to the left, having a delta angle of 00°57'07", with a radius of 7158.56 feet, for an arc length of 118.94 feet to an iron pin with a cap stamped Woolpert, the chord for said curve bears S 66°49'08" W for a chord length of 118.94 feet;
- 6. S 66°20'34" W for a distance of 461.71 feet to a mag nail set;
- 7. S 73°19'03" W for a distance of 104.87 feet to a railroad spike found;
- 8. On a curve to the right, having a delta angle of 15°58'14", with a radius of 500.00 feet, for an arc length of 139.37 feet to a rail road spike found, the chord for said curve bears S 81°18'10" W for a chord length of 138.92 feet;
- 9. S 89°17'17" W for a distance of 72,00 feet to the point of beginning, containing 17.3913 acres more or less and being subject to all right of ways, easements and restrictions of record.

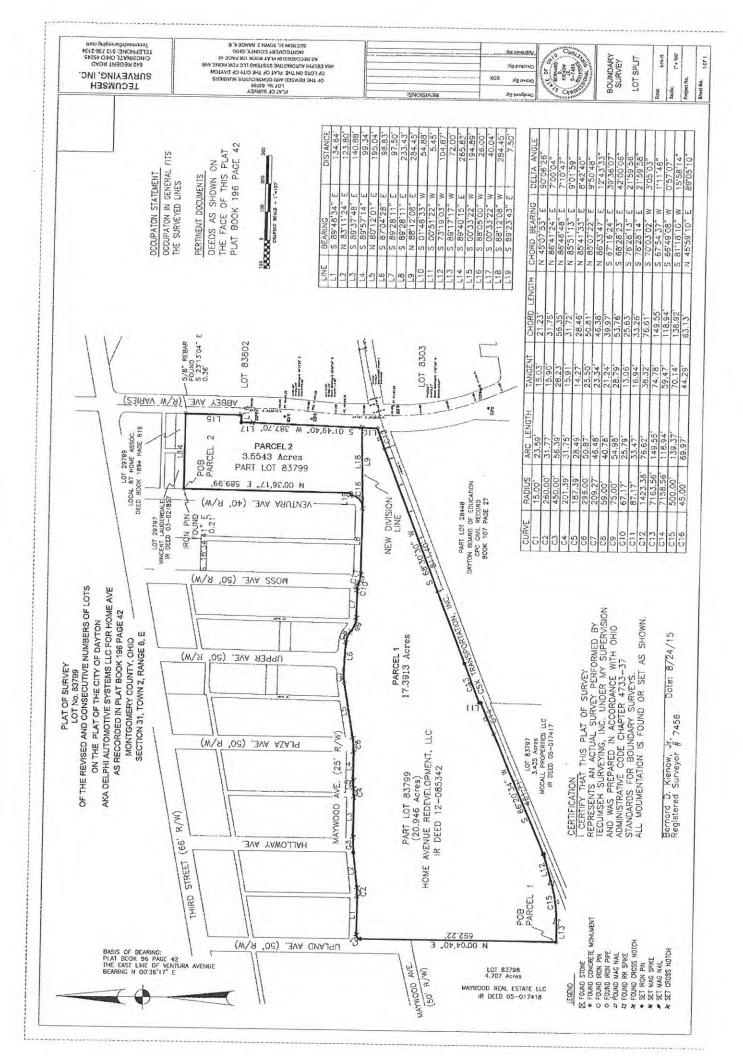
Bearings in this description are based on Plat Book 196 page 42 of the Montgomery County Records. As recorded in the Montgomery County Engineer's Record of Land Surveys in Volume 2015 Page 0288.

This description is based on an actual survey performed by Tecumseh Surveying Inc. in November 2014 under my supervision.

Bernard D. Kienow, Jr.

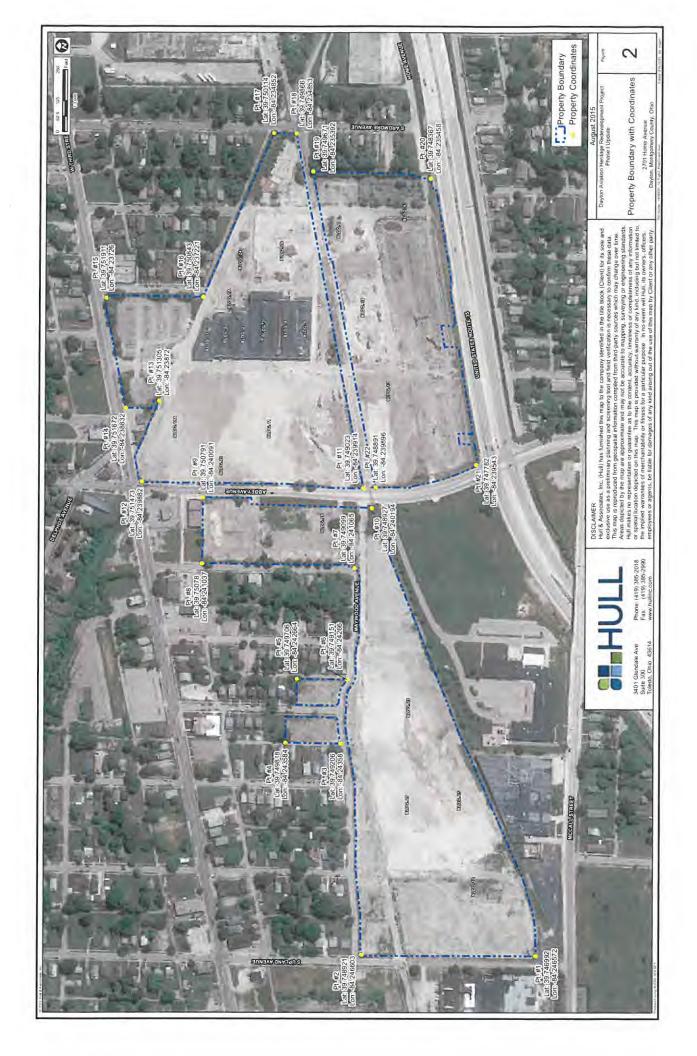
PS 7456





Environmental Covenant Page 16

### Attachment 3



# Exhibit 5 Operation and Maintenance Agreement

#### **OPERATION AND MAINTENANCE AGREEMENT**

Between Ohio EPA and Home Avenue Redevelopment, LLC Regarding the Dayton Aviation Heritage Redevelopment Property 2701 Home Avenue, Dayton, Montgomery County, Ohio

This Operation and Maintenance Agreement ("Agreement") is entered into by the Director of the Ohio Environmental Protection Agency ("Director") and Home Avenue Redevelopment, LLC, and the City of Dayton ("Volunteers"), pursuant to Ohio Revised Code ("ORC") Chapter 3746 and Ohio Administrative Code ("OAC") Chapter 3745-300. The Volunteers and the Director are collectively known as the Parties. In consideration of the mutual covenants and subject to the terms and conditions of this Agreement, the Parties agree as follows:

- 1. The NFA Letter Property. A no further action letter (NFA Letter No. 16NFA647; the "NFA Letter") under the Voluntary Action Program ("VAP") was submitted to the Director on behalf of the Volunteers (Home Avenue Redevelopment, LLC and City of Dayton) on December 1, 2015, by Laura Funk, a certified professional (Certified Professional No. 286). The NFA Letter addresses approximately 54.35 acres of real property owned by Home Avenue Redevelopment, LLC and located at 2701 Home Avenue, Dayton, Montgomery County, Ohio (the "Property"). The legal description of the Property is attached hereto as Attachment 1, and is incorporated into this Agreement by reference.
- 2. O&M Plan. The NFA Letter includes an Operation and Maintenance Plan ("O&M Plan"). The term "O&M Plan" refers to the O&M Plan dated December 2016. The O&M Plan is attached hereto as Attachment 2 and is incorporated into this Agreement by reference. The O&M Plan is available for review as a public record with the NFA Letter for the Property, and a copy may be obtained by contacting the Records Management Officer at Ohio EPA's Southwest District Office, at 401 East Fifth Street, Dayton, Ohio 45402, (937) 285-6357.
- 3. Requirement for an O&M Agreement. This Agreement is required for the Property pursuant to ORC 3746.10(C)(2) or 3746.12(A)(2) and OAC 3745-300-11.
- 4. Remedy for the Property. The remedy for the Property includes, overall, the following:
  - a. Remedies Performed. Remedies performed at the Property under the VAP included soil excavation and asbestos abatement, which are documented in the NFA letter. A soil vapor extraction system was operated at the Property prior to commencing the voluntary action.
  - b. Activity and Use Limitations. Activity and use limitations are included in a proposed Environmental Covenant developed pursuant to ORC 5301.80 to 5301.92 and OAC 3745-300-11. Following the issuance of a covenant not to sue for the Property, the Environmental Covenant will be recorded pursuant to ORC 3746.14 as a deed record for the Property.
  - c. Engineering Controls. The engineering controls include sub-slab depressurization (SSD) systems installed off-Property, as described in the O&M Plan.

- d. Interim Measures. Not applicable.
- 5. Engineering Controls Subject to the O&M Plan. The engineering controls, as set forth in the Remedy for the Property Section of this Agreement, are part of the voluntary action remedy and must be established and maintained by the Volunteers in accordance with this Agreement and the O&M Plan to demonstrate that the Property will maintain and comply with the applicable standards set forth in ORC Chapter 3746 and OAC Chapter 3745-300 and in the covenant not to sue issued pursuant to ORC 3746.12 for the Property (the "Covenant Not to Sue").
- 6. Implementation of O&M Plan. The Volunteers shall maintain the engineering controls in accordance with the O&M Plan, and perform all inspections, repairs, reporting, record keeping, demonstrations and all other requirements in accordance with the O&M Plan. Implementation of the O&M Plan includes a review of off-property occupancy and a response process based on this review, as described in the O&M Plan.
- Property Access. Home Avenue Redevelopment, LLC certifies that it has access to the subject properties sufficient to fully implement the O&M Plan and this Agreement. Further, upon transfer of the Property or portion thereof, Home Avenue Redevelopment, LLC shall use best efforts to maintain such access or transfer the obligation for implementing the O&M Plan.
- 8. Recording of Agreement. Home Avenue Redevelopment, LLC may record this Agreement as an exhibit to the Covenant Not to Sue but the recording of this Agreement is not required by ORC 3746.14.
- 9. Effect of Violation of this Agreement. Failure to comply with this Agreement or the O&M Plan may constitute the failure to maintain an applicable standard in accordance with ORC 3746.12(B) and OAC Chapter 3745-300, and may be subject to the process outlined in the Compliance Schedule Agreement Section of this Agreement. However, noncompliance with an activity and use limitation for the Property voids the Covenant Not to Sue, as provided in ORC 3746.05.
- 10. Financial Assurance. Home Avenue Redevelopment, LLC shall ensure that reasonable and adequate funds in the amount of at least fifteen thousand Dollars (\$15,000) are available to comply with this Agreement and the O&M Plan by providing financial assurance. For its financial assurance, Home Avenue Redevelopment, LLC has established a financial assurance account for \$15,000, copy [attached hereto as Attachment [#] —orsubmitted to Ohio EPA for the NFA Letter file]. Home Avenue Redevelopment, LLC agrees to maintain the financial assurance account or execute and fund another comparable,

acceptable financial assurance, and submit to Ohio EPA a copy of each financial assurance. Examples of acceptable financial assurance include a trust fund, a surety bond guaranteeing payment into a trust fund, a surety bond guaranteeing performance of this Agreement and the O&M Plan, a letter of credit, an insurance policy, the obligated party's financial assurance demonstration under VAP affidavit, an escrow account, or such other financial assurance as approved by Ohio EPA. In the event the amount or form of financial assurance provided herein is inadequate to comply with the terms of this Agreement, the Director may propose a modification of this paragraph pursuant to the Modification Section of this Agreement.

- 11. Notice to Prospective Property Transferees of Remedy Obligations. At least thirty (30) days prior to transferring ownership of the Property, or any portion of the Property that is subject to this Agreement, the Property owner shall provide written notice to the prospective Property transferee that the Property, or such portion of the Property, is subject to the Covenant Not to Sue and this Agreement and the O&M Plan.
- 12. Notice to the Director of Transfer of Property. Within fourteen (14) days after a sale or other transfer of the Property, or any portion of the Property that is subject to this Agreement, the Property owner shall provide written notice to the Director that the Property, or such portion of the Property, has been sold or otherwise transferred. This notice submitted to the Director shall include:
  - The name, address, and telephone number of the new Property owner and the name, title, address, email address and telephone number of the contact person for the new Property owner;
  - A legal description of the Property or such portion of the Property being transferred; and,
  - The closing date of the transfer of ownership of the Property or such portion of the Property.
- 13. Option to Transfer this Agreement / Notice to Director. Pursuant to ORC 3746.14(C), the Volunteers may transfer this Agreement to any other person (the "Transferee") by assignment or in conjunction with the acquisition of title to the Property. Within fourteen (14) days after such transfer, the transferring Volunteer shall provide written notice to the Director of the terms and conditions of the transfer of obligations of this Agreement and the O&M Plan ("Transfer Terms and Conditions"), by submitting:
  - a. The name, address, and telephone number of the Transferee and the name, title, address, email address and telephone number of the contact person for the Transferee;

- A statement of the extent to which the Transferee has assumed the obligations of this Agreement and the O&M Plan;
- A copy of the legal instrument(s) that provide the Transfer Terms and Conditions;
   and,
- d. A copy of the Transferee's proposed financial assurance that complies with the Financial Assurance Section of this Agreement. The Transferor's financial assurance shall remain effective until Ohio EPA approves in writing the Transferee's financial assurance and the Transferee's financial assurance is fully executed and funded.

Upon the Director's receipt of such notice of the Transfer Terms and Conditions in accordance with this section of the Agreement, and Ohio EPA's approval of the Transferee's financial assurance, the Transferee shall be considered a party to this Agreement, in accordance with the Transfer Terms and Conditions.

- 14. Subparceling. Upon written notice submitted by the Property owner to the Director that one or more parcels of the Property have been divided or subparceled, this Agreement shall apply separately to each subdivided parcel subject to this Agreement upon the date of subdivision or the date of the submission of written notice, whichever occurs later. the Property owner shall provide such written notice by submitting:
  - The legal description of the subdivided parcels;
  - **b.** A survey map or maps of the subdivided parcels;
  - c. The date of the subdivision:
  - d. A copy of the legal instrument(s) providing for the subdivision; and
  - e. The name(s) of the new owner, if any, of the subdivided parcels.

Upon the written notice submitted pursuant to this Section, this Agreement shall be deemed to be amended, without modification of this Agreement, to identify the subdivided parcels of the Property. The Covenant Not to Sue shall remain in effect for any subdivided portion of the Property that continues to comply with the requirements of this Agreement and the applicable standards that form the basis of the Covenant Not to Sue. Any revocation of the Covenant Not to Sue for any parcel shall not be based solely on a finding that any other subdivided parcel of the Property no longer complies with the applicable standards or the requirements of this Agreement.

15. Document Submittals / Notifications to Parties. All documents, including but not limited to notices and reports, required to be submitted by the Volunteers pursuant to this

#### Page 5

Agreement shall be identified by NFA Letter number [16NFA647] and addressed to the following persons:

#### For Ohio EPA:

Ohio EPA – Central Office
Division of Environmental Response and Revitalization
50 West Town Street
P.O. Box 1049
Columbus, OH 43216-1049

Attn: DERR Compliance Officer, Dayton Aviation Heritage Redevelopment

Property (16NFA647)

Electronic filings: records@epa.ohio.gov

#### and

Ohio EPA-Southwest District Office
Division of Environmental Response and Revitalization
401 E. Fifth Street
Dayton, OH 45402-2911
Attn: Project Coordinator for Dayton Aviation Heritage Redevelopment Property
(NFA number 16NFA647)

All documents, including any notice required to be submitted by Ohio EPA pursuant to this Agreement, shall be delivered to the Volunteers. Notice to the Volunteers shall be addressed to:

Home Avenue Redevelopment, LLC 6397 Emerald Parkway Suite 200 Dublin, Ohio 43016 Attn: Bradford S. White

The City of Dayton 101 West Third Room 430 Dayton, Ohio 45401 Attn: Veronica Morris

Any Party may designate an alternative contact name or mailing address upon written notification to the other Parties.

- 16. Modification of this Agreement or the O&M Plan. This Agreement or the O&M Plan may be modified by agreement of the appropriate parties. Modifications to this Agreement shall be in writing, signed by the authorized representative of the Volunteers and by the Director, and shall be effective on the date signed by the Director. Modifications to the O&M Plan shall be submitted in writing to Ohio EPA, subject to approval by Ohio EPA, and effective upon approval by Ohio EPA. Ohio EPA reserves the right to require the submittal of a new NFA letter for a proposed modification that will result in the application of an applicable standard or land use different than that contained in the
- 17. Compliance Schedule Agreement. Within thirty (30) days after the mailing of notice from the Director of a finding that the Property or a portion of the Property no longer complies with an applicable standard upon which the issuance of the Covenant was based, the Volunteers shall notify the Director of its intention to return the Property or such portion of the Property to compliance with the applicable standards upon which the Covenant was based ("cure") and enter into a compliance schedule agreement with the Director for such cure, in accordance with ORC 3746.12(B).

NFA letter approved by the Covenant Not to Sue.

- 18. Compliance with Other Laws. The Volunteers shall conduct all activities pursuant to this Agreement and the O&M Plan in compliance with all applicable local, state, and federal laws and regulations, including but not limited to requirements to obtain permits or authorizations. Ohio EPA's review and approval of any health and safety measures contained in the O&M Plan is limited to ensuring compliance with the requirements of ORC Chapter 3746 and OAC Chapter 3745-300 and does not extend to determining compliance with the Occupational Safety and Health Act, 29 U.S.C. 651 et seq., the regulations adopted under that act, or any obligation imposed by the Occupational Safety and Health Administration.
- 19. Inspections by Ohio EPA. The Volunteers shall allow the Director or his authorized representatives to perform inspections to determine compliance with this Agreement. Such inspections shall be consistent with ORC Chapter 3746 and OAC Chapter 3745-300, including but not limited to the reasonableness of inspection timing and frequency in accordance with ORC 3746.21.
- 20. Program Costs for Monitoring Compliance with this Agreement. The Ohio EPA shall be reimbursed by the Volunteers for the actual direct and indirect costs incurred by Ohio EPA in monitoring compliance with this Agreement pursuant to ORC 3746.04(B)(8) and OAC 3745-300-03. The City of Dayton shall ensure, pursuant Section 35.21 of the Revised Code of General Ordinances, that funds in an amount not to exceed ten thousand dollars and zero cents (\$10,000.00) are available to comply with this Agreement and its obligations under O&M Plan. In the event the amount or form of financial assurance provided herein is inadequate to comply with the City of Dayton's obligations under the O&M Plan, the Director may propose a

#### Page 7

modification of this paragraph pursuant to the Modification Section of this Agreement.

- a. Ohio EPA will periodically submit to the Volunteers an itemized statement of its monitoring costs for the previous year(s). Monitoring costs include, but are not limited to, costs for reviewing submissions or reports required by this Agreement, conducting Property inspections, and corresponding with the Volunteer or its representative.
- b. Within thirty (30) days of receipt of such itemized statement, the Volunteers shall remit payment for all of Ohio EPA's monitoring costs for the previous year(s). If the accuracy of items on the itemized statement is disputed, a request for review of the statement may be made within thirty (30) days of receipt of the statement. After review, Ohio EPA will resubmit an itemized statement with appropriate revisions. Payment shall be remitted within fourteen (14) days of receipt of the resubmitted statement.
- Payments shall be remitted to Ohio EPA pursuant to this Section of the Agreement as follows:
  - i. Payment shall be made by an official (or certified) check made payable to "Treasurer, State of Ohio." The check shall be submitted to Ohio EPA, Office of Fiscal Administration, P.O. Box 1049, 50 West Town Street, Columbus, Ohio 43216-1049.
  - ii. A copy of the transmittal letter and check shall be sent to the Fiscal Officer, DERR, Ohio EPA, P.O. Box 1049, 50 West Town Street, Columbus, Ohio 43216-1049.
  - iii. A copy of the transmittal letter and check shall be sent to the Records Management Officer, DERR, Ohio EPA, P.O. Box 1049, 50 West Town Street, Columbus, Ohio 43216-1049.
- 21. Termination. This Agreement shall terminate upon (a) revocation or voidance of the Covenant Not to Sue, (b) a demonstration, in accordance with OAC 3745-300-11(D) and Section 11 of the O&M Plan, that implementation of this Agreement and the O&M Plan is no longer necessary for the Property to comply with applicable standards, upon written acknowledgment of the demonstration by the Manager of the VAP, or (c) otherwise upon the written approval of the Director of the Ohio EPA.
- Waiver. The Volunteers agree that the terms and conditions of this Agreement are lawful and reasonable, and agree to comply with this Agreement. The Volunteers hereby waive their right to appeal the issuance of this Agreement and the terms and conditions of this Agreement, and hereby waives any and all rights it might have to seek judicial or

Page 8

administrative review of this Agreement either in law or equity. The Volunteers reserve their right to participate in any appeal by a third party to the Environmental Review Appeals Commission or to any court.

- 23. Entire Agreement. The terms and conditions of this Agreement, including the O&M Plan, constitute the entire agreement of the parties. No oral or written representation shall be binding unless approved as a modification of this Agreement pursuant to the Modification Section of this Agreement. The terms and conditions of this Agreement shall be interpreted consistent with ORC Chapter 3746 and OAC Chapter 3745-300.
- 24. Authorized Signatories. Each undersigned representative of a signatory to this Agreement represents that he or she is fully authorized to execute this Agreement and to legally bind such signatory to this Agreement.
- 25. Effective Date. Upon execution of this Agreement by both parties, this Agreement shall be a valid and binding obligation enforceable in accordance with its terms and conditions and effective upon the date of the Director's signature.

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Operation and Maintenance Agreement for *Dayton Aviation Heritage Redevelopment Property (NFA number 16NFA647)* 

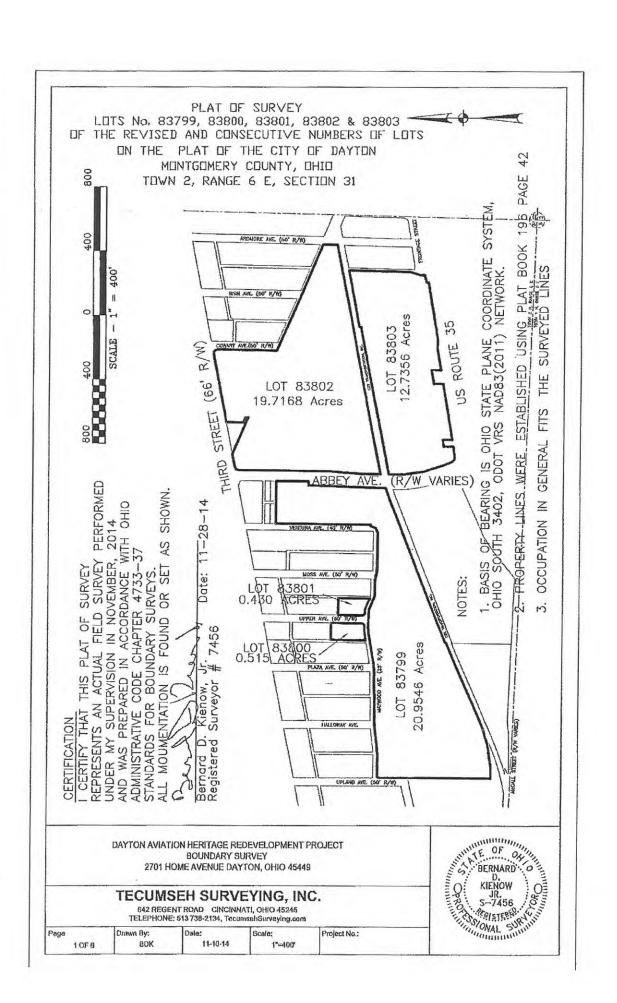
In witness whereof, the parties hereto have e	executed this Agreement.
Home Avenue Redevelopment, LLC	
By: BoledSUN	Date: June 14, 2017
Printed Name: Bradland S. Whi	Le
Title: Manager	
The City of Dayton, Ohio	
By: Vulley Cloter	Date: 0-20-17
Printed Name: Shelly Dickstein	
Title: City Manager	
Approved as to Form And Correctness:	
City Attorney Bynt	**No Commission Action Required**
OHIO ENVIRONMENTAL PROTECTION AGEN	ICY:
63	1-1-
Ву:	Date: 10/2/17
Craig W. Butler	

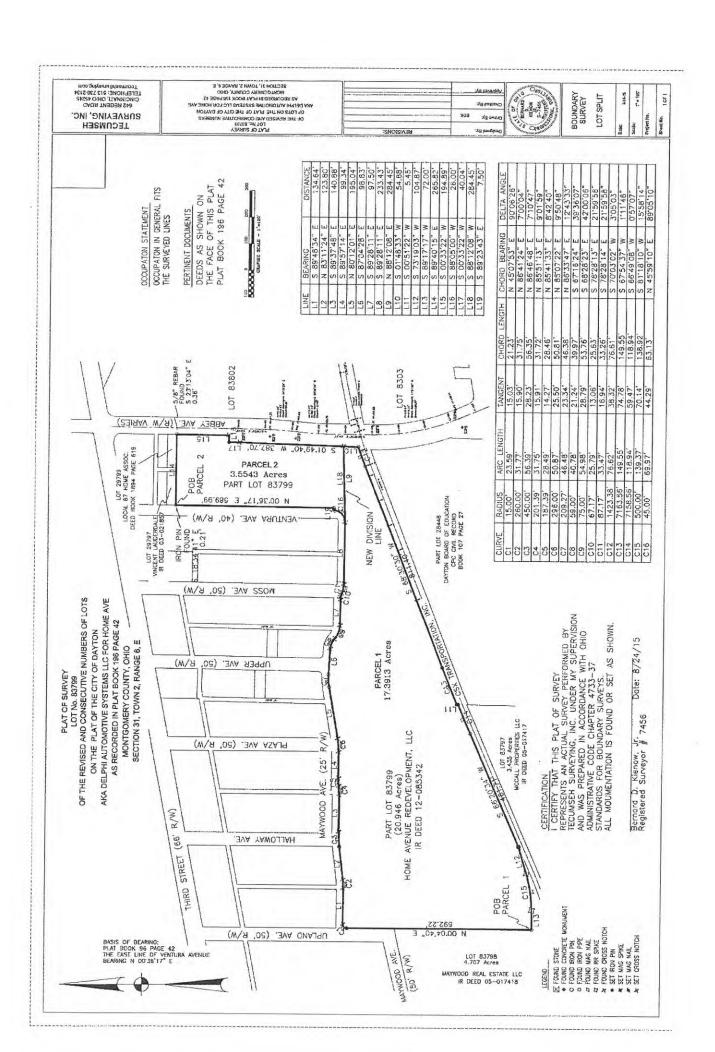
rev. 05/07, 01/08, 4/09, 11/09, 10/10, 5/11, 10/11

Operation and Maintenance Agreement for Dayton Aviation Heritage Redevelopment Property (NFA number 16NFA 647)

## **ATTACHMENT 1**

Property Legal Description





#### Legal Description Parcel 1

Situate in the City of Dayton, Section 31, Town 2, Range 6, E, Montgomery County, Ohio and being part of lot 83779 of the revised and consecutive number of lots on the Plat of the City of Dayton, AKA Delphi Automotive Systems LLC for Home Avenue as recorded in Plat Book 196 Page 42, as conveyed to Home Avenue Redevelopment LLC as recorded in IR Deed12-085342 and being more particularly described as follows;

Beginning at an iron pin with a cap stamped Woolperts found at the southwest corner of said lot 83799;

Thence with the west line of said lot 83799 and becoming the east right of way line of Upland Avenue (50' R/W), N 00°04'40" E for a distance of 692.22 feet to an iron pin set on the south right of way line of Maywood Avenue (25' R/W);

Thence along the south right of way line of said Maywood Avenue the following 19 courses;

- On a curve to the right, having a delta angle of 90°06'26", with a radius of 15.00 feet, for an arc length of 23.59 feet to a cross notch set, the chord for said curve bears N 45°07'53" E for a chord length of 21.23 feet;
- 2. S 89°48'34" E for a distance of 134.64 feet to a cross notch found;
- 3. On a curve to the left, having a delta angle of 07°00'04", with a radius of 260.00 feet, for an arc length of 31.77 feet to a cross notch found, the chord for said curve bears N 86°41'24" E for a chord length of 31.75 feet;
- 4. N 83°11'24" E for a distance of 123.80 feet to an iron pin set;
- On a curve to the right, having a delta angle of 07°10'47", with a radius of 450.00 feet, for an arc length of 56.39 feet to a cross notch found, the chord for said curve bears N 86°46'48" E for a chord length of 56.35 feet;
- 6. S 89°37'48" E for a distance of 140.88 feet to a cross notch found;
- 7. On a curve to the left, having a delta angle of 09°01'59", with a radius of 201.39 feet, for an arc length of 31.75 feet to a cross notch found, the chord for said curve bears N 85°51'13" E for a chord length of 31.72 feet;
- 8. With a reverse curve to the right, having a delta angle of 08°42'40", with a radius of 187.39 feet, for an arc length of 28.49 feet to a cross notch found, the chord for said curve bears N 85°41'33" E for a chord length of 28.46 feet;
- 9. S 89°57'14" E for a distance of 99.34 feet to a cross notch found;
- 10. On a curve to the left, having a delta angle of 09°50'48", with a radius of 296.00 feet, for an arc length of 50.87 feet to a cross notch found, the chord for said curve bears N 85°07'22" E for a chord length of 50.81 feet;
- 11. N 80°12'01" E for a distance of 195.04 feet to an iron pin with a cap stamped Woolpert found;

- 12. On a curve to the right, having a delta angle of 12°43'33", with a radius of 209.27 feet, for an arc length of 46.48 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears N 86°33'47" E for a chord length of 46.38 feet;
- 13. S 87°04'28" E for a distance of 98.83 feet to a cross notch found;
- 14. On a curve to the right, having a delta angle of 39°36'07", with a radius of 59.00 feet, for an arc length of 40.78 feet to a cross notch found, the chord for said curve bears S 67°16'24" E for a chord length of 39.97 feet;
- 15. With a reverse curve to the left, having a delta angle of 42°00'06", with a radius of 75.00 feet, for an arc length of 54.98 feet to a cross notch found, the chord for said curve bears S 68°28'23" E for a chord length of 53.76 feet;
- 16. S 89°28'11" E for a distance of 97.50 feet to a cross notch found;
- 17. On a curve to the right, having a delta angle of 21°59'56", with a radius of 67.17 feet, for an arc length of 25.79 feet to a cross notch found, the chord for said curve bears S 78°28'13" E for a chord length of 25.63 feet;
- 18. With a reverse curve to the left, having a delta angle of 21°59'58", with a radius of 87.17 feet, for an arc length of 33.47 feet to a cross notch found, the chord for said curve bears S 78°28'14" E for a chord length of 33.26 feet;
- 19. S 89°28'11" E for a distance of 233.43 feet to a cross notch found;

Thence on a new division line, N 88°12'08" E for a distance of 284.45 feet to a cross notch found on the east line of said lot 83799 and being the west right of way line of Abbey Avenue (R/W varies);

Thence with the east line of said lot 83799 and the west line of said Abbey Avenue, S 01°48'33" W for a distance of 54.88 feet to an iron pin with a cap stamped Woolpert found on the southerly line of said lot 83799 and being the northerly line of CSX Transportation, Inc.;

Thence with the southerly line of said lot 83799 and the northerly line of said CSX Transportation, Inc. the following 9 courses;

- 1. On a curve to the left, having a delta angle of 03°05'03", with a radius of 1423.38 feet, for an arc length of 76.62 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears S 70°03'02" W for a chord length of 76.61 feet;
- 2. S 68°30'30" W for a distance of 811.40 feet to an iron pin set;
- On a curve turning to the left, having a delta angle of 01°11'46", with a radius of 7163.56 feet, for an arc length of 149.55 feet to an iron pin set, the chord for said curve bears S 67°54'37" W for a chord length of 149.55 feet;
- 4. S 00°51'22" W for a distance of 5.45 feet to an iron pin set;

- 5. On a curve to the left, having a delta angle of 00°57'07", with a radius of 7158.56 feet, for an arc length of 118.94 feet to an iron pin with a cap stamped Woolpert, the chord for said curve bears S 66°49'08" W for a chord length of 118.94 feet;
- 6. S 66°20'34" W for a distance of 461.71 feet to a mag nail set;
- 7. S 73°19'03" W for a distance of 104.87 feet to a railroad spike found;
- On a curve to the right, having a delta angle of 15°58'14", with a radius of 500.00 feet, for an arc length of 139.37 feet to a rail road spike found, the chord for said curve bears S 81°18'10" W for a chord length of 138.92 feet;
- 9. S 89°17'17" W for a distance of 72.00 feet to the point of beginning, containing 17.3913 acres more or less and being subject to all right of ways, easements and restrictions of record.

Bearings in this description are based on Plat Book 196 page 42 of the Montgomery County Records. As recorded in the Montgomery County Engineer's Record of Land Surveys in Volume 2015 Page 0288.

This description is based on an actual survey performed by Tecumseh Surveying Inc. in November 2014 under my supervision.

Bernard D. Kienow, Jr.

PS 7456



#### Legal Description Parcel 2

Situate in the City of Dayton, Section 31, Town 2, Range 6, E, Montgomery County, Ohio and being part of lot 83779 of the revised and consecutive number of lots on the Plat of the City of Dayton, AKA Delphi Automotive Systems LLC for Home Avenue as recorded in Plat Book 196 Page 42, as conveyed to Home Avenue Redevelopment LLC as recorded in IR Deed12-085342 and being more particularly described as follows;

Beginning at a northwest corner of said lot 83799 and being on the east right of way line of Ventura Avenue (40; R/W), witness an iron pin with a cap stamped LJB found S 18°34'41" E at a distance of 0.21 feet;

Thence with the north line of said lot 83799, S 89°40'15" E for a distance of 265.82 feet to the northeast corner of said lot 83799 and being on the west right of way line of Abbey Avenue (R/W varies), witness an 5/8" rebar found S 23°13'04" E at a distance of 0.36 feet;

Thence with the east line of said lot 83799 and being the west right of way line of said Abbey Avenue the following 4 courses;

- 1. S 00°33'22" W for a distance of 194.89 feet to a cross notch found;
- 2. S 88°05'00" W for a distance of 26.00 feet to an iron pin set;
- 3. S 00°33'22" W for a distance of 40.04 feet to a cross notch found;
- 4. S 01°49'40" W for a distance of 387.70 feet to a cross notch found;

Thence on a new division line, S 88°12'08" W for a distance of 284.45 feet to a cross notch found on the south right of way line of said Ventura Avenue;

Thence along the south right of way and becoming the east right of way of said Ventura Avenue the following 3 courses;

- On a curve to the left, having a delta angle of 89°05'10", with a radius of 45.00 feet, for an arc length
  of 69.97 feet to a cross notch found, the chord for said curve bears N 45°59'10" E for a chord length
  of 63.13 feet;
- 2. S 89°23'43" E for a distance of 7.50' feet to an iron pin with a cap stamped Woolpert found;
- 3. N 00°36'17" E for a distance of 589.99 feet to the point of beginning, containing 3.5543 acres more or less and being subject to all right of ways, easements and restrictions of record.

Bearings in this description are based on Plat Book 196 page 42 of the Montgomery County Records. As recorded in the Montgomery County Engineer's Record of Land Surveys in Volume 2015 Page 0288.

This description is based on an actual survey performed by Tecumseh Surveying Inc. in November 2015 under my supervision.

Bernard D. Kienow, Jr. PS 7456



#### Lot 83800 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83800 of the revised and consecutive number of lots on the Plat of the City of Dayton, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the southwest corner of said lot 83800;

Thence N 00°51'22" E for a distance of 222.05 feet;

Thence S 89°20'06" E for a distance of 105.04 feet;

Thence S 00°51'22" W for a distance of 195.36 feet;

Thence on a curve turning to the right with a radius of 15.00feet, for an arc length of 23.80feet, the chord for said curve bears S 46°18'39" W for a chord length of 21.38feet;

Thence with a reverse curve turning to the left with a radius of 234.27feet, for an arc length of 47.34feet, the chord for said curve bears S 85°59'23" W for a chord length of 47.26feet;

Thence S 80°12'01" W for a distance of 43.46 feet to the point of beginning, containing 0.5149 acres more or less and being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Kienow, Jr.

P.S. 7456



#### Lot 83801 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83801 of the revised and consecutive number of lots on the Plat of the City of Dayton,, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the northwest corner of said lot 83801;

Thence S 89°18'07" B for a distance of 105.06 feet;

Thence S 00°51'22" W for a distance of 202.14 feet;

Thence with a curve turning to the right with a radius of 50.00 feet, for an arc length of 16.65 feet, the chord for said curve bears N 57°00'24" W for a chord length of 16.57 feet;

Thence with a reverse curve turning to the left with a radius of 84.00feet, for an arc length of 58.06feet, the chord for said curve bears N 67°16'20" W for a chord length of 56.91feet;

Thence N 87°04'28" W for a distance of 23.77 feet;

Thence on a curve turning to the right with a radius of 15.00feet, for an arc length of 23.02feet, the chord for said curve bears N 43°06'34" W for a chord length of 20.83feet;

Thence N 00°51'22" E for a distance of 155.99 feet to the point of beginning, containing 0.4301 acres more or less and being subject to all easements, restrictions and right of ways of record

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Kienow, Jr.

P.S. 7456



#### Lot 83802 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83802 of the revised and consecutive number of lots on the Plat of the City of Dayton,, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the southwest corner of said lot 83802;

Thence N 00°33'22" E for a distance of 120.39 feet

Thence N 04°53'26" B for a distance of 198.47 feet;

Thence N 00°33'22" E for a distance of 562.09 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 34.24feet, the chord for said curve bears N 39°47'25" E for a chord length of 31.62feet;

Thence N 79°01'28" E for a distance of 83.24 feet;

Thence S 67°07'18" E for a distance of 246.35 feet;

Thence N 01°05'04" E for a distance of 17.28 feet;

Thence N 67°07'55" W for a distance of 33.68 feet;

Thence N 01°04'25" E for a distance of 103.87 feet;

Thence N 79°01'28" E for a distance of 432,36 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 44.56feet, the chord for said curve bears S 49°54'51" E for a chord length of 38.89feet;

Thence S 01°08'49" W for a distance of 367.98 feet;

Thence S 67°07'18" E for a distance of 717.26 feet;

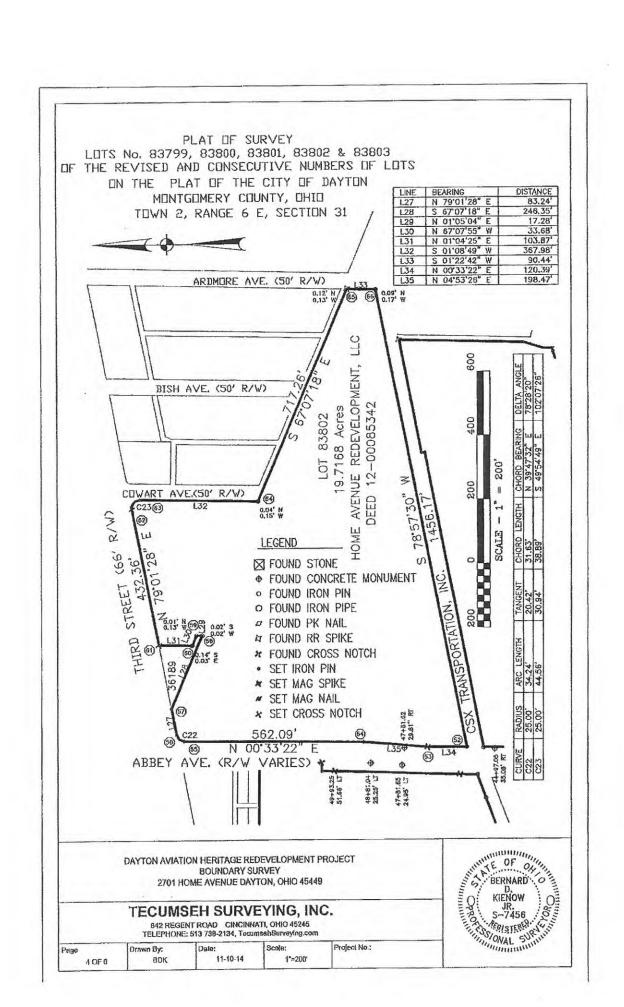
Thence S 01°22'42" W for a distance of 90.44 feet;

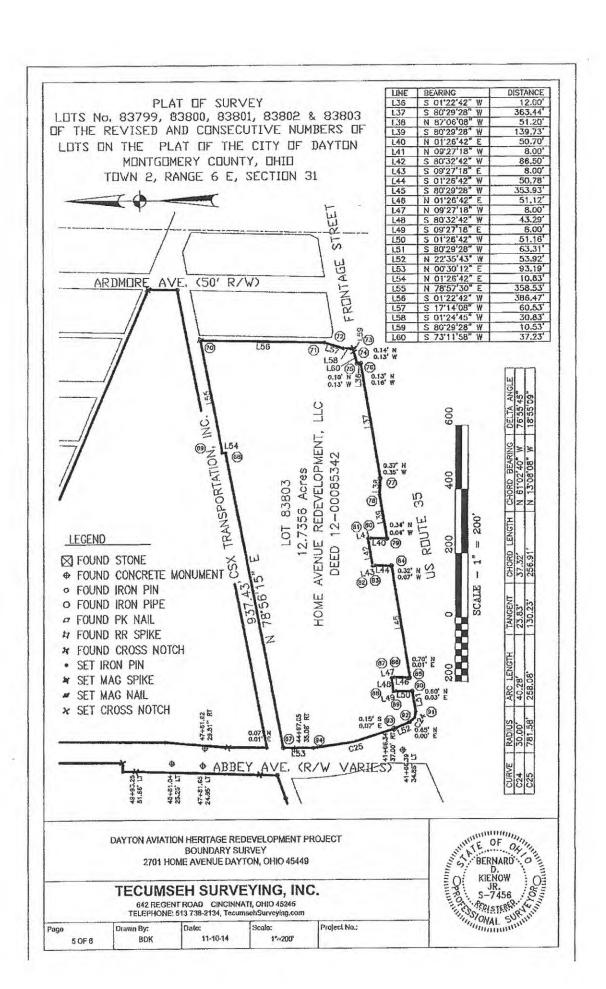
Thence S 78°57'30" W for a distance of 1456.16 feet to the point of beginning, containing 19.7168 acres more or less and being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records:

P.S. 7456







POINT#	NORTH EAST		POINT#		EAST	
1	641042.226	1477424.706	52	641744.345	1479318.458	
2	641734.442	1477425.645	53	641864.733	1479319.627	
3	641749.422	1477440.694	54	642062.480	1479336.547	
4	641748.974	1477575.333	55	642624.544	1479342.002	
5	641750.807	1477607.030	56 642648.844		1479362.243	
6	641765.487	1477729.957	57	642664.692	1479443.961	
7	641768.652	1477786.221	58	642568.917	1479670.931	
8	641767.743	1477927.098	59	642586.194	1479671.258	
9	641770.036	1477958.732	60	642599.283	1479640,225	
10	641772.174	1477987.114	61	642703.134	1479642.171	
11	641772.094	1478086.454	62	642785.451	1480066.623	
12	641776.413	1478137,078	63	642760.408	1480096.378	
13	641809,610	1478329.272	64	642392.501	1480089.012	
14	641812.391	1478375,573	65	642113.648	1480749.847	
15	641807.347	1478474.274	66	642023.234	1480747.671	
		1478511.144	67	641692.573	1479317.971	
16	641791.904	1478561.151	68	641872,447	1480237.983	
17	641772.178	1478658.647	69	641883.073	1480238.251	
18	641771,276	1478683.762	70	641951.740	1480590.144	
19	641766.153	1478716.355	71	641565.382	1480580.848	
20	641759,504	1478949.775	72	641507,570	1480562.913	
21	641757.344		73	641476.749	1480562.153	
22	641801.209	1478995.176	74	641475.010	1480551,768	
23	641801,129	1479002.676		641464.249	1480516.127	
24	642391.087	1479008.903	75 76	641452.252	1480515.838	
25	642389.559	1479274.719	77		1480157.392	
26	642194.679	1479272.827		641392,212	1480106.257	
27	642193.809	1479246.842	78	641394.800	1479968.447	
28	642153.771	1479246.453	79	641371.717	1479969.726	
29	641766.268	1479234.087	80	641422,400		
30	641711,416	1479232,354	81	641430.292	1479968.412	
31	641685,276	1479160.341	82	641416,082	1479883.087	
32	641388.007	1478405.357	83	641408.191	1479884.401	
33	641331,768	1478266.784	84	641357,427	1479883.120	
34	641326.318	1478266.703	85	641298,958	1479534.053	
35	641279,527	1478157.397	86	641350.061	1479535.342	
36	641094.232	1477734,458	87	641357.953	1479534.028	
37	641064.127	1477634.002	88	641350,841	1479491.326	
38	641043.120	1477496.680	89	641342.950	1479492.641	
39	641826.807	1478282,189	90_	641291.806	1479491,350	
40	642048.876	1478285.507	91	641281.347	1479428.910	
41	642047.656	1478390.540	92	641299.416	1479396.254	
42	641852.318	1478387.621	93	641349.197	1479375.537	
43	641837.549	1478372.160	94	641599.384	1479317.152	
44	641834.244	1478325.016				
45	642004.703	1478439.908				
46	642003.423	1478544.960				
47	641801.306	1478541.940				
48	641810.329	1478528,042				
49	641832.316	1478475.551				
50	641833.526	1478451.810				
51	641848.731	1478437.577				

DAYTON AVIATION HERITAGE REDEVELOPMENT PROJECT BOUNDARY SURVEY 2701 HOME AVENUE DAYTON, OHIO 45449

## TECUMSEH SURVEYING, INC. 642 REGENT ROAD GINCINNATI, OHIO 45245 TELEPHONE; 613 738-2134, TecumsehSurveying.com

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#### Lot 83803 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83803 of the revised and consecutive number of lots on the Plat of the City of Dayton, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the northwest corner of said lot 83803;

Thence N 78°56'15" E for a distance of 937.43 feet;

Thence N 01°26'42" E for a distance of 10.63 feet;

Thence N 78°57'30" E for a distance of 358.53 feet;

Thence S 01°22'42" W for a distance of 386.47 feet;

Thence S 17°14'08" W for a distance of 60.53 feet;

Thence S 01°24'45" W for a distance of 30.83 feet;

Thence S 80°29'28" W for a distance of 10.53 feet;

Thence S 73°11'58" W for a distance of 37.23 feet;

Thence S 01°22'42" W for a distance of 12.00 feet;

Thence S 80°29'28" W for a distance of 363.44 feet;

Thence N 87°06'08" W for a distance of 51.20 feet;

Thence S 80°29'28" W for a distance of 139.73 feet;

Thence N 01°26'42" E for a distance of 50.70 feet;

Thence N 09°27'18" W for a distance of 8.00 feet;

Thence S 80°32'42" W for a distance of 86,50 feet;

Thence S 09°27'18" E for a distance of 8.00 feet;

Thence S 01°26'42" W for a distance of 50.78 feet;

Thence S 80°29'28" W for a distance of 353.93 feet;

Thence N 01°26'42" B for a distance of 51.12 feet;

Thence N 09°27'18" W for a distance of 8.00 feet;

Thence S 80°32'42" W for a distance of 43.29 feet;

Thence S 09°27'18" E for a distance of 8.00 feet;

Thence S 01°26'42" W for a distance of 51.16 feet;

Thence S 80°29'28" W for a distance of 63.31 feet;

Thence on a curve turning to the right with a radius of 30,00feet, for an arc length of 40,28feet, the chord for said curve bears N 61°03'08" W for a chord length of 37.32feet;

Thence N 22°35'43" W for a distance of 53.92 feet;

Thence on a curve turning to the right with a radius of 781.58feet, for an arc length of 258.08feet, the chord for said curve bears N 13°08'08" W for a chord length of 256.91feet;

Thence N 00°30'12" E for a distance of 93.20 feet to the point of beginning, containing 12.7356 acres more or lessand being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Kienow, Jr. P.S. 7456



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### Attachment 2

### Lot 83802 Metes & Bounds Description

Situate in the City of Dayton, Montgomery County, Ohio and being lot number 83802 of the revised and consecutive number of lots on the Plat of the City of Dayton,, as recorded in Plat Book 196 page 42 and being more particularly described as follows:

Beginning at the southwest corner of said lot 83802;

Thence N 00°33'22" E for a distance of 120.39 feet

Thence N 04°53'26" B for a distance of 198.47 feet;

Thence N 00°33'22" E for a distance of 562.09 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 34.24feet, the chord for said curve bears N 39°47'25" E for a chord length of 31.62feet;

Thence N 79°01'28" E for a distance of 83.24 feet;

Thence S 67°07'18" E for a distance of 246.35 feet;

Thence N 01°05'04" E for a distance of 17.28 feet;

Thence N 67°07'55" W for a distance of 33.68 feet;

Thence N 01°04'25" E for a distance of 103.87 feet;

Thence N 79°01'28" E for a distance of 432.36 feet;

Thence on a curve turning to the right with a radius of 25.00feet, for an arc length of 44.56feet, the chord for said curve bears S 49°54'51" E for a chord length of 38.89feet;

Thence S 01°08'49" W for a distance of 367.98 feet;

Thence S 67°07'18" E for a distance of 717.26 feet;

Thence S 01°22'42" W for a distance of 90.44 feet;

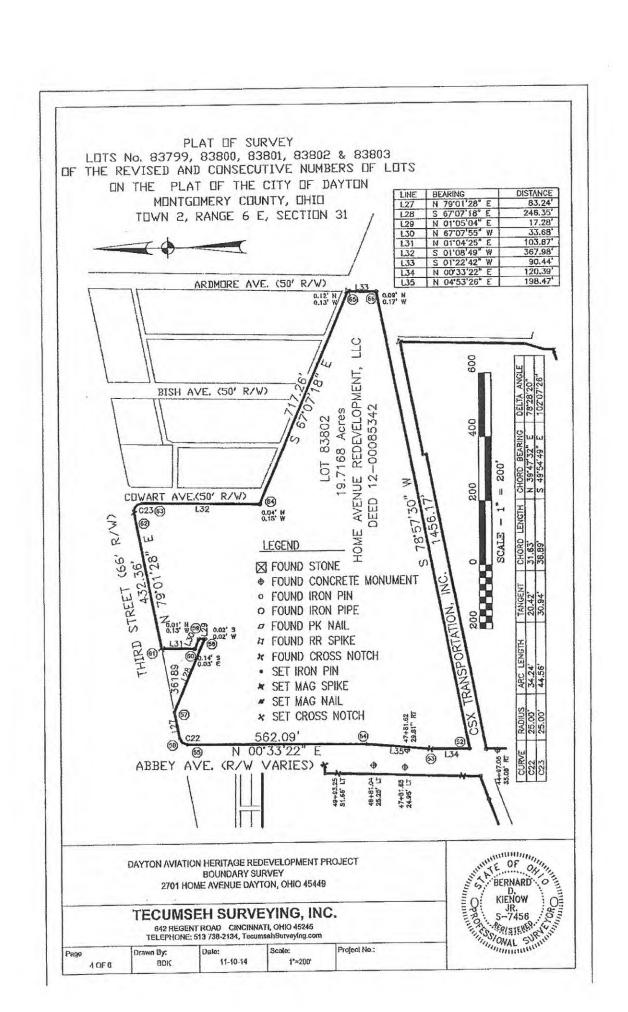
Thence S 78°57'30" W for a distance of 1456.16 feet to the point of beginning, containing 19.7168 acres more or less and being subject to all easements, restrictions and right of ways of record.

Description is based on Plat Book 196 page 42 of the Montgomery County Records.

Bernard D. Kienow, Jr. P.S. 7456

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#### Legal Description Parcel 1

Situate in the City of Dayton, Section 31, Town 2, Range 6, E, Montgomery County, Ohio and being part of lot 83779 of the revised and consecutive number of lots on the Plat of the City of Dayton, AKA Delphi Automotive Systems LLC for Home Avenue as recorded in Plat Book 196 Page 42, as conveyed to Home Avenue Redevelopment LLC as recorded in IR Deed12-085342 and being more particularly described as follows;

Beginning at an iron pin with a cap stamped Woolperts found at the southwest corner of said lot 83799;

Thence with the west line of said lot 83799 and becoming the east right of way line of Upland Avenue (50' R/W), N 00°04'40" E for a distance of 692.22 feet to an iron pin set on the south right of way line of Maywood Avenue (25' R/W);

Thence along the south right of way line of said Maywood Avenue the following 19 courses;

- On a curve to the right, having a delta angle of 90°06'26", with a radius of 15.00 feet, for an arc length of 23.59 feet to a cross notch set, the chord for said curve bears N 45°07'53" E for a chord length of 21.23 feet;
- 2. S 89°48'34" E for a distance of 134.64 feet to a cross notch found;
- On a curve to the left, having a delta angle of 07°00'04", with a radius of 260.00 feet, for an arc length of 31.77 feet to a cross notch found, the chord for said curve bears N 86°41'24" E for a chord length of 31.75 feet;
- 4. N 83°11'24" E for a distance of 123.80 feet to an iron pin set;
- 5. On a curve to the right, having a delta angle of 07°10'47", with a radius of 450.00 feet, for an arc length of 56.39 feet to a cross notch found, the chord for said curve bears N 86°46'48" E for a chord length of 56.35 feet;
- 6. S 89°37'48" E for a distance of 140.88 feet to a cross notch found;
- 7. On a curve to the left, having a delta angle of 09°01'59", with a radius of 201.39 feet, for an arc length of 31.75 feet to a cross notch found, the chord for said curve bears N 85°51'13" E for a chord length of 31.72 feet;
- 8. With a reverse curve to the right, having a delta angle of 08°42'40", with a radius of 187.39 feet, for an arc length of 28.49 feet to a cross notch found, the chord for said curve bears N 85°41'33" E for a chord length of 28.46 feet;
- 9. S 89°57'14" E for a distance of 99.34 feet to a cross notch found;
- 10. On a curve to the left, having a delta angle of 09°50'48", with a radius of 296.00 feet, for an arc length of 50.87 feet to a cross notch found, the chord for said curve bears N 85°07'22" E for a chord length of 50.81 feet;
- 11. N 80°12'01" E for a distance of 195.04 feet to an iron pin with a cap stamped Woolpert found;

- 12. On a curve to the right, having a delta angle of 12°43'33", with a radius of 209.27 feet, for an arc length of 46.48 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears N 86°33'47" E for a chord length of 46.38 feet;
- 13. S 87°04'28" E for a distance of 98.83 feet to a cross notch found;
- 14. On a curve to the right, having a delta angle of 39°36'07", with a radius of 59.00 feet, for an arc length of 40.78 feet to a cross notch found, the chord for said curve bears S 67°16'24" E for a chord length of 39.97 feet;
- 15. With a reverse curve to the left, having a delta angle of 42°00'06", with a radius of 75.00 feet, for an arc length of 54.98 feet to a cross notch found, the chord for said curve bears S 68°28'23" E for a chord length of 53.76 feet;
- 16. S 89°28'11" E for a distance of 97.50 feet to a cross notch found;
- 17. On a curve to the right, having a delta angle of 21°59'56", with a radius of 67.17 feet, for an arc length of 25.79 feet to a cross notch found, the chord for said curve bears S 78°28'13" E for a chord length of 25.63 feet;
- 18. With a reverse curve to the left, having a delta angle of 21°59'58", with a radius of 87.17 feet, for an arc length of 33.47 feet to a cross notch found, the chord for said curve bears S 78°28'14" E for a chord length of 33.26 feet;
- 19. S 89°28'11" E for a distance of 233.43 feet to a cross notch found;

Thence on a new division line, N 88°12'08" E for a distance of 284.45 feet to a cross notch found on the east line of said lot 83799 and being the west right of way line of Abbey Avenue (R/W varies);

Thence with the east line of said lot 83799 and the west line of said Abbey Avenue, S 01°48'33" W for a distance of 54.88 feet to an iron pin with a cap stamped Woolpert found on the southerly line of said lot 83799 and being the northerly line of CSX Transportation, Inc.;

Thence with the southerly line of said lot 83799 and the northerly line of said CSX Transportation, Inc. the following 9 courses;

- On a curve to the left, having a delta angle of 03°05'03", with a radius of 1423.38 feet, for an arc length of 76.62 feet to an iron pin with a cap stamped Woolpert found, the chord for said curve bears S 70°03'02" W for a chord length of 76.61 feet;
- 2. S 68°30'30" W for a distance of 811.40 feet to an iron pin set;
- 3. On a curve turning to the left, having a delta angle of 01°11'46", with a radius of 7163.56 feet, for an arc length of 149.55 feet to an iron pin set, the chord for said curve bears S 67°54'37" W for a chord length of 149.55 feet;
- 4. S 00°51'22" W for a distance of 5.45 feet to an iron pin set;

- 5. On a curve to the left, having a delta angle of 00°57'07", with a radius of 7158.56 feet, for an arc length of 118.94 feet to an iron pin with a cap stamped Woolpert, the chord for said curve bears S 66°49'08" W for a chord length of 118.94 feet;
- 6. S 66°20'34" W for a distance of 461.71 feet to a mag nail set;
- 7. S 73°19'03" W for a distance of 104.87 feet to a railroad spike found;
- On a curve to the right, having a delta angle of 15°58'14", with a radius of 500.00 feet, for an arc length of 139.37 feet to a rail road spike found, the chord for said curve bears S 81°18'10" W for a chord length of 138.92 feet;
- 9. S 89°17'17" W for a distance of 72.00 feet to the point of beginning, containing 17.3913 acres more or less and being subject to all right of ways, easements and restrictions of record.

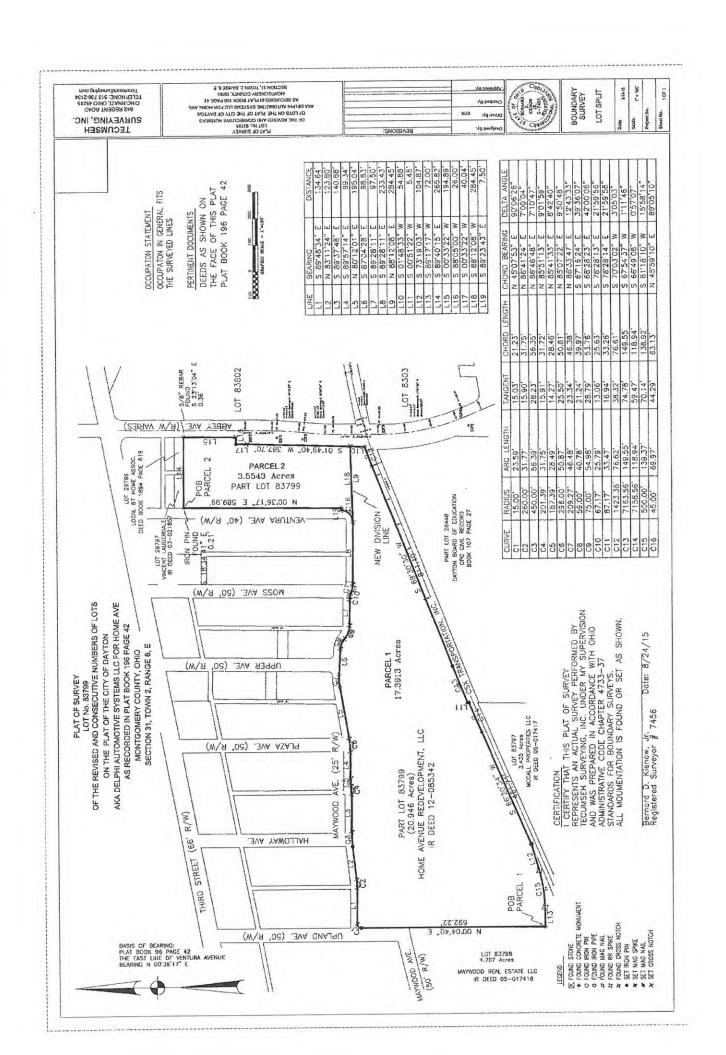
Bearings in this description are based on Plat Book 196 page 42 of the Montgomery County Records. As recorded in the Montgomery County Engineer's Record of Land Surveys in Volume 2015 Page 0288.

This description is based on an actual survey performed by Tecumseh Surveying Inc. in November 2014 under my supervision.

Bernard D. Kienow, Jr.

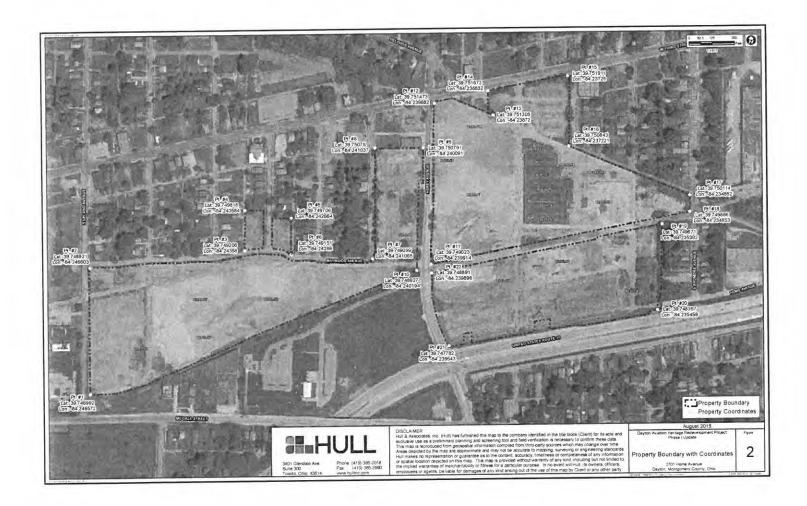
PS 7456





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### Attachment 3



Operation and Maintenance Agreement for Dayton Aviation Heritage Redevelopment Property (NFA number 16NFA 647)

ATTACHMENT 2
O&M Plan

### ATTACHMENT D

Revised O&M Plan

### **OPERATION AND MAINTENANCE PLAN**

### FOR THE:

DAYTON AVIATION HERITAGE REDEVELOPMENT PROPERTY 2701 HOME AVENUE DAYTON, MONTGOMERY COUNTY, OHIO 45417

PREPARED FOR:

HOME AVENUE REDEVELOPMENT, LLC CO-VOLUNTEER AND PROPERTY OWNER 6397 EMERALD PARKWAY, SUITE 200 DUBLIN, OHIO 43016

> CITY OF DAYTON, OHIO CO-VOLUNTEER 101 WEST THIRD STREET DAYTON, OHIO 45402

NFA LETTER ISSUED BY: VAP CERTIFIED PROFESSIONAL LAURA FUNK, CP #286 WITH

AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE, INC., 521 BYERS ROAD, SUITE 204, MIAMISBURG, OHIO 45432, 937-859-3600

**MARCH 2017** 



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## SECTION 1.0 – PURPOSE OF THE OPERATION AND MAINTENANCE (O&M) PLAN (OAC 3745-300-11(F)(1)( $\alpha$ ))

The purpose of this operation and maintenance (O&M) plan is to ensure that this property maintains compliance with Ohio EPA Voluntary Action Program (VAP) applicable standards through the remedial activities described herein. The remedial activities contained in this operation and maintenance plan are to: (check all that apply)

- [] Operate and monitor an active remedial system/remedy
- [X] Maintain and monitor an engineering control
- [] Monitor passive remediation via sampling events
- [X] Other(s) (describe): Implement an occupancy review and response process

## SECTION 2.0 – IDENTIFICATION OF REMEDIAL ACTIVITIES SUBJECT TO THE O&M PLAN (OAC 3745-300-11(F)(1))

Remedial activities subject to this O&M Plan include:

- O&M of off-Property Sub-slab Depressurization Systems (SSDS) SSDS have been installed at 10 off-Property structures that contain 13 residences. An annual inspection and sub-slab soil vapor and indoor air sampling program has been conducted at the off-Property residences since 2008. Five systems are currently not operating due to vacancies in the residence: 55 S. Ardmore Avenue, 59 S. Ardmore, 110 S. Ardmore Avenue, 117 S. Ardmore Avenue and 125 S. Ardmore Avenue. These systems can come back on-line if the residences are to be occupied in the future. The sampling and inspection program is expected to continue under this O&M Plan while residual contamination attenuates over time.
- Implementing a process that mitigates risk of exposure to chemicals of concern (COCs) by
  future potential off-Property receptors by monitoring parcels within an off-Property Area
  of Concern for occupancy and establishing response activities if occupancy is indicated or
  possible, as follows:
  - For unoccupied homes within the Area of Concern, quarterly review of City of Dayton water accounts for substantial increase in water usage, which will be considered an indication of occupancy.
  - For vacant land within the Area of Concern, quarterly review of City of Dayton construction permits for indication of intent to construct a structure that will be occupied.
  - If occupancy or construction for occupancy is identified, Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) will send a letter by certified mail requesting access to conduct sampling and/or mitigation, as warranted. Sampling and/or installation of a mitigation system will be conducted as warranted, assuming access is provided.
  - If a property owner is non-responsive to the certified letter request, an additional certified letter will be sent. If the property owner is non-responsive to the second letter, then Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) will contact Ohio EPA for additional support. If the property owner is still non-responsive or if the property owner denies access the occupancy review and response process will discontinue until there is a change in ownership, as determined through quarterly review of Montgomery County online property ownership records. If access has been denied or a property owner has been unresponsive, a certified letter will be sent on an annual basis reiterating the request for access.
- Implementing a process to gain control within the off-property Area of Concern, as follows:
  - The City of Dayton Economic Development Department Division of Building Inspection will tag the cards for each of the properties within the Area of Concern with a notation that environmental conditions may warrant further evaluation with respect to potential for vapor intrusion. This tagging process provides a means for the City of Dayton to inform developers of any special conditions when interest is express in a particular property or assemblage of properties.

- The City of Dayton will acquire tax delinquent properties within the Area of Concern that meet certain eligibility criteria.
- Once a property within the Area of Concern has been acquired by the City, it will place any existing residence into the nuisance abatement queue for future demolition. For properties within the Area of Concern that are or may become City-owned, the City of Dayton will require through purchase and sale agreement(s) or other means that a vapor intrusion evaluation and/or mitigation, if necessary, is conducted prior to occupancy of new structures on the property.

Figure 1.0 shows the general location of the Property and the adjacent Area of Concern. Figure 2.0 shows the location of the remedial activities described above. Figure 3.0 shows the delineation of the Area of Concern and illustrates the status of the parcels (i.e., parcel vacant, occupied or unoccupied). The remedial activities identified above have been constructed or initiated prior to the issuance of the no further action (NFA) letter or NFA letter addendum.

### SECTION 3.0 – DESCRIPTION AND PURPOSE OF THE REMEDIAL ACTIVITIES SUBJECT TO THE O&M PLAN (OAC 3745-300-11(F)(1)(b))

- The SSDS were installed at 10 structures that include 13 residences in the off-Property Area 1. of Concern to address COCs that exceeded the applicable VAP standards in accordance with Ohio Administrative Code (OAC) 3745-300-11(A)(1). The soil-gas-to-indoor air screening levels for residential land use were determined by using the residential indoor air standards in OAC 3745-300-08, Appendix A, Table IV, and an attenuation factor of 0.03 as recommended in guidance1. For all chemicals of concern except chloroform at specific locations (i.e., 55 S. Ardmore Ave., 59 S. Ardmore Ave., 61/63A/63B S. Ardmore Ave., 71 S. Ardmore Ave., 75 S. Ardmore Ave., 79 S. Ardmore Ave., 81/83/85 S. Ardmore Ave., and 110 S. Ardmore Ave.) the residential indoor air standards are the generic residential indoor air standards in OAC 3745-300-08, Appendix A, Table IV. For chloroform at the specific locations listed above, a Property-specific indoor air standard was derived based on background concentrations, as described in Section 4.0 below. The SSDS are currently installed and being monitored annually at the occupied subset of the structures. Inspections are completed at each occupied residence, and two residences (i.e., 20%) are selected for indoor air and sub-slab soil gas sampling annually.
- 2. An occupancy review and response process has been established to ensure appropriate measures are taken to assess and mitigate, as warranted, off-Property vapor intrusion risk in the event that exposure pathways become complete as a result of changes in off-Property uses. The process includes quarterly review of water usage records and quarterly review of construction permits by Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement). If occupancy or construction for occupancy is indicated, a sequence of response activities is required to assess and mitigate risk provided that the necessary access is granted by the relevant off-Property owner. Quarterly review of online county records for change in ownership will also be conducted by Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement), if access was previously denied. The status of parcels within the Area of Concern, at the time the NFA addendum was being prepared, is summarized in Table 2.

Equation for target sub-slab and exterior soil gas concentration corresponding to target indoor air concentration (US EPA, VISL Calculator User's Guide, June 2013, p. 7).

### SECTION 4.0 – APPLICABLE STANDARDS SUBJECT TO THE O&M PLAN (OAC 3745-300-11(F)(1)(a) and (OAC 3745-300-11(F)(1)(c)(v))

The VAP applicable standards subject to this O&M plan include the residential indoor air standards in OAC 3745-300-08, Appendix A, Table IV for all chemicals of concern except chloroform at specific locations identified in Section 3.0 above. The residential indoor air standard for chloroform is the Property-specific residential background indoor air standard for chloroform of 11 ug/m³; the derivation of the Property-specific residential background concentration for chloroform in indoor air for the assessment of the off-Property Residential receptor at specific locations is included in Appendix A of this O&M Plan. In addition, soil gas-to-indoor air screening levels for residential land use were determined by using the residential indoor air standards in OAC 3745-300-08, Appendix A, Table IV, and the default attenuation factor of 0.03 as recommended in guidance.

Table 1: Applicable Standards and Screening Levels and Remedial Activities Subject to the O&M Plan

Remedial Activity	Media	Point of compliance	Exposure Pathway	Receptor	Chemicals of concern	Monitoring Criteria
Sub-Slab Vapor Depressurization Systems		Indoor Air	Vapor Intrusion	Off-Property Residents	Chloroform, PCE, TCE	Generic Indoor Air Standards, and Property-Specific Residential Background Indoor Air Standard for Chloroform <sup>1</sup>
						Chloroform: 0.22 ppbv, or 1.1 ug/m³; except at specific locations¹, at which the standard is 2.2 ppbv or 11 ug/m³.  PCE: 6.1 ppbv, or 42 ug/m³ TCE: 0.4 ppbv, or 2.1 ug/m³
Sub-Slab Vapor Depressurization Systems		Sub-slab vapor	Vapor Intrusion	Off-Property Residents	PCE, TCE	Soil gas/sub-slab vapor screening levels, based on the Generic Residential Indoor Air Standards and an Attenuation Factor = 0.03
						Chloroform: 7.3 ppbv, or 37 ug/m <sup>3</sup> PCE: 200 ppbv, or 1,400 ug/m <sup>3</sup> TCE: 13 ppbv, or 70 ug/m <sup>3</sup>

#### Note:

<sup>1.</sup> The Property-specific indoor air standard for chloroform of 2.2 ppbv or 11  $\text{ug/m}^3$  applies to residences located at 55 S. Ardmore Ave., 59 S. Ardmore Ave., 61/63A/63B S. Ardmore Ave., 71 S. Ardmore Ave., 75 S. Ardmore Ave., 79 S. Ardmore Ave., 81/83/85 S. Ardmore Ave., and 110 S. Ardmore Ave. as demonstrated in Appendix A of this report.

### SECTION 5.0 – EVALUATING THE EFFECTIVENESS OF THE REMEDIAL ACTIVITIES (OAC 3745-300-11(F)(1)(c))

## Section 5.1 Purpose and General Description of the Activities to Evaluate the Effectiveness of the Remedial Activities

SSDS have been installed at 10 off-Property structures containing 13 residences. Inspections of the SSDS will be conducted annually for those structures that are occupied. The purpose of the inspections is to confirm that the systems and their associated components are in proper working order. As of the August 2016 O&M inspection, the occupied homes consist of the following:

- 55, 57 Bish Avenue;
- 61, 63A, 63B S. Ardmore Avenue;
- 75 S. Ardmore Avenue;
- 79 S. Ardmore Avenue; and
- 113 S. Ardmore Avenue.

In addition to the inspections, indoor air and sub-slab soil vapor samples are collected at two occupied residences (i.e., 20%) selected at random, and submitted for subsequent analysis of the COCs. At each residence, the indoor air and sub-slab soil vapor concentrations will be compared to applicable standards (i.e., indoor air standards and sub-slab vapor screening levels) as shown in Table 1, above.

Also, a quarterly review of public records (water usage, construction permits, change in ownership) will be performed by Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) for unoccupied residences and vacant properties within the Area of Concern (area defined on Figure 3). The purpose of these reviews will be to identify any change of usage that may be indicative of occupancy. This process will identify any structures that may require additional evaluation or remedial action, or that due to change in status, may be eliminated from further O&M obligations. The current status and owner of each parcel within the off-Property Area of Concern is identified in Table 2; the current status of the parcel is noted by one of the following descriptors: with system, without system, occupied residence, unoccupied residence, or vacant land. The occupancy review and response process in the form of a decision tree is shown on Figure 4.

The City of Dayton will implement a process to gain control within the off-Property Area of Concern, including acquisition of properties within the Area of Concern, placing existing residences on said acquired properties into the nuisance abatement queue for future demolition, requiring vapor intrusion evaluation and/or

mitigation (if necessary) be conducted prior to occupancy of new structures on said acquired properties, and tagging cards maintained by the City of Dayton for properties within the off-property Area of Concern with a notation that environmental conditions may warrant further evaluation with respect to potential for vapor intrusion.

### Section 5.2 Monitoring and Data Collection Activities and Schedules Annual Inspections of SSDS

A qualified person from Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) will inspect the SSDS in each of the occupied structures that are equipped with SSDS annually. Any cracks or breaches discovered will be documented in the O&M Plan engineering control inspection form found in Appendix B.

During each annual inspection, system vacuum/pressure will be monitored, the system fans/blower will be checked for operation, several components (including system piping and seals) will be visually inspected, and system operation by the resident will be confirmed. At each of two randomly-selected residences, an indoor air sample and a sub-slab vapor sample will be collected and submitted for analysis of chloroform, PCE and TCE. Samples will be collected while the mitigation system is operating. In the event that any of the randomly selected residences are not accessible for indoor-air and/or sub-slab soil vapor sampling, an alternate residence will be chosen randomly and sampling conducted therein.

Sample collection and laboratory analysis will be performed in accordance with the sampling procedures described in Section 6.3 of the U.S. EPA-approved Phase II Work Plan prepared by Haley & Aldrich, the Standard Operating Procedures (SOPs) included in Appendices B and C of that Work Plan, and the QAPP approved in the Phase I Work Plan prepared by Haley & Aldrich and incorporated in the Phase II Work Plan by reference. These procedures have been modified as necessary to be consistent with current Ohio EPA guidance (Section 4 of Sample Collection and Evaluation of Vapor Intrusion to Indoor Air for Remedial Response and Voluntary Action Programs, Ohio EPA Division of Emergency and Remedial Response, May 2010).

If the reported concentration of any COC from an indoor air sample collected during the mitigation system monitoring event exceeds its respective screening level, a subsequent sample will be collected within 30 days. If this follow-up sample confirms that the concentration of any COC exceeds its respective indoor air screening level, the mitigation system design and construction will be re-evaluated and additional engineering controls will be implemented unless a demonstration is made that the indoor air exceedances are not related to the subsurface vapor concentrations. Recommendations for system modification, if warranted, will be provided to the Ohio EPA and implemented at the affected structure within 60 days of Ohio EPA's approval. If the follow-up sample indicates that the reported concentrations of each COC is at or below its respective indoor air

screening level, the established sampling schedule will resume. If a SSDS is found to be inoperable, the response steps identified in Section 8.0 will be taken.

### Occupancy Review and Response Process for Unoccupied Homes and Vacant Land

For unoccupied homes, a quarterly review of City of Dayton water accounts will be conducted by Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) to note any substantial increase in water usage, which will be considered an indication of occupancy. For vacant land, a quarterly review of City construction permits will be conducted for any indication that a structure intended for occupancy will be constructed. If occupancy or construction for occupancy are identified, Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) will send a letter requesting access to conduct sampling and/or mitigation, as warranted. Sampling will be conducted and/or installation of a mitigation system, as warranted, assuming access is provided. Mitigation systems that are installed as a result of this process will be incorporated into the annual O&M inspection and sampling program. Please refer to Table 2 for current property status and Figure 4 for a flow chart describing the occupancy review and response process. The starting status of each off-Property parcel in the flow chart process will be based upon the findings of the preceding quarterly review process and any subsequent response actions.

### City of Dayton Property Controls

The City of Dayton Economic Development Department – Division of Building Inspection maintains property cards for all properties within the city limits. The City of Dayton will tag the cards for each of the properties within the Area of Concern with a notation that environmental conditions may warrant further evaluation with respect to potential for vapor intrusion. This tagging process provides a means for the City of Dayton to inform developers of any special conditions when interest is expressed in a particular property or assemblage of properties.

The City of Dayton will pursue acquisition of properties within the Area of Concern that meet the following criteria: 1) unoccupied; 2) two or more years delinquent on taxes; 3) tax lien has not been sold; and 4) delinquent tax payment plan is not in effect. The eligible properties within the Area of Concern as of December 2016 are shown on Table 2. The City will take ownership through the Real Estate Acquisition Process (REAP) program, Montgomery County Landbank, or any other program designed to facilitate ownership of unoccupied tax delinquent real estate.

Once a property within the Area of Concern has been acquired by the City, the City will place any existing residence into the nuisance abatement queue for future demolition. For properties within the Area of Concern that are or may become City-owned, the City of Dayton will require through purchase and sale agreement(s)

or other means that a vapor intrusion evaluation and/or mitigation, if necessary, is conducted prior to occupancy of new structures on the properties. Therefore, once a property is owned by the City of Dayton, it will no longer be subject to the occupancy review and response process. However, the property will be included in the annual report until demonstration is made that applicable standards have been met.

# SECTION 6.0 - OPERATION AND MAINTENANCE OF THE REMEDIAL ACTIVITIES SUBJECT TO THE O&M PLAN (OAC 3745-300-11(F)(1)(b) and (OAC 3745-300-11(F)(1)(d))

### A) Operation Tasks and Schedules:

- 1) SSDS: The SSDS were installed by A to Z Radon Services between December 2007 and September 2012. Each system consists of either a Radon Away GP501 or XP201 blower and two to three suction points. Each system is equipped with a padlocked switch to ensure that the unit is not turned off. O&M manuals for each system are included in Appendix C; access agreements for each property as available are included in Appendix D. Inspection of each system to ensure it is operational will be conducted on an annual basis. The last annual SSDS inspection was conducted August 2016.
- Occupancy review and response process for properties within Area of Concern: a quarterly administrative review process will be implemented by Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) through public records requests. If a change in status is identified by the review, the response actions as diagramed in Figure 4 will be conducted in a timely manner. The footnotes of Table 2 record the relevant dates of the last records review.

### B) Maintenance Tasks and Schedules:

- SSDS: During each annual inspection, system vacuum/pressure will be monitored, the system fans/blower will be checked for operation, several components (including system piping and seals) will be visually inspected, and system operation by the resident will be confirmed. Maintenance and repair issues will be diagnosed during the inspection, if needed, and addressed in a timely manner.
- Occupancy review and response process: After each quarterly review, Table 2 or a similar version of, will need to be revised to keep track of the current status of each residence within the Area of Concern. For properties within the Area of Concern that have been acquired by the City, the City will place any existing residence into the nuisance abatement queue for future demolition.

For those properties that are or may become City-owned, the City will require through purchase and sale agreement(s) or other means that a vapor intrusion evaluation and/or mitigation, if necessary, is conducted prior to occupancy of new structures on the properties. Therefore, once the City has acquired the property, quarterly reviews are no longer necessary. However, the property will be included in the annual report until demonstration is made that applicable standards have been met.

## SECTION 7.0 – ADJUSTMENTS TO NORMAL OPERATION AND MAINTENANCE (OAC 3745-300-11(F)(1)(e))

None of the SSDS installed is designed to be adjusted. Maintenance and repair issues will be diagnosed during the inspection, if needed.

Residences within the Area of Concern that have been acquired by the City of Dayton will no longer be included in the occupancy review and response process. These residences will be included in the annual report until demonstration is made that applicable standards have been met.

# SECTION 8.0 – IDENTIFYING AND ADDRESSING POTENTIAL PROBLEMS WITH THE REMEDIAL ACTIVITIES SUBJECT TO THE O&M PLAN (OAC 3745-300-11(F)(1)(f))

# Section 8.1 Identifying and Addressing Potential Problems with the Sub-Slab Depressurization Systems

SSDS maintenance and repair issues will be diagnosed during the inspection, if needed. The field inspection sheet that is completed for each residence is provided in Appendix B. Items such as pipe joints, blower motor, and pressure/vacuum meters will be inspected during each scheduled annual inspection. In the event SSDS is not operating during the inspection, Home Avenue Redevelopment, LLC, the City of Dayton, or Transferee (as defined in the O&M Agreement) will be responsible for any repairs necessary to resume operation of the system, unless one of the following criteria apply:

- the residence is vacant (unoccupied);
- the City of Dayton or Montgomery County has declared the residence to be a nuisance;
- the residence has been demolished; or
- the residence owner or tenant refuses to allow access thus precluding repair of the SSDS.

If a residence equipped with a SSDS is vacant, the residence will be incorporated into the quarterly occupancy review process. If the review process identifies occupancy, Home Avenue Redevelopment, LLC, the City of Dayton, its designee or Transferee (as defined in the O&M Agreement), will attempt to contact the property owner or tenant to ensure operation of the SSDS has been restored. If a residential SSDS is not operational, the residence will be omitted from the random sampling pool until its operation is resumed.

# Section 8.2 Identifying and Addressing Potential Problems with the Occupancy Review and Response Process

As described in Section 5.2 above, the City of Dayton has acquired or will acquire -eligible homes and vacant parcels within the Area of Concern. In the unlikely event that 1) the City of Dayton fails to require a vapor intrusion evaluation prior to occupancy of any newly-constructed structure on the properties that were acquired/owned by the City of Dayton; or 2) termination criteria in soil gas have not been met at the time of occupancy, the Home Avenue Redevelopment, LLC, the City of Dayton, or Transferee (as defined in the O&M Agreement) will undertake the occupancy review and response process for said properties.

### SECTION 9.0 – RECORD KEEPING (OAC 3745-300-11(F)(1)(g))

The results of the indoor air and sub-slab soil gas analyses will be communicated to the relevant off-property owner in accordance with the Access Agreement. Annual reporting will document and satisfy the requirements of paragraphs (F)(1) and (F)(2) of OAC 3745-300-11.

## SECTION 10.0 – REPORTING ON OPERATION AND MAINTENANCE PLAN ACTIVITIES (OAC 3745-300-11(F)(2))

Following issuance of a no further action letter, Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) will submit a report annually in accordance with this section and the O&M Agreement. This will include among others, the submittal to the director, under affidavit, on September 1, beginning in the year 2017. The report will include the following:

- Results from all remedy effectiveness evaluation activities;
- A demonstration of the performance of all remedial activities subject to the O&M Plan;
- standards is applicable with compliance demonstration of how 3. the maintain measures used the maintained, including or met the and safety health protectiveness of public remedy's environment; and
- to necessary remain remedial activities that the 4. Confirmation verification the property, standards applicable maintain remedial 3745-300-11(E) that the OAC with accordance conducted in comply property to for the needed longer activities are applicable standards.

## SECTION 11.0 – TERMINATION OF THE OPERATION AND MAINTENANCE PLAN (OAC 3745-300-11(E)(2))

It is expected that concentrations of VOCs in the groundwater underlying the residences subject to this O&M Plan will decrease over time, as a result of remedial actions undertaken at the Property (i.e., soil-vapor extraction, removal of source area materials and replacement with clean backfill) that reduced the concentrations of VOCs in groundwater emanating from the Property. Therefore, operation of the SSDS may be discontinued at any residence upon demonstrating achievement of the termination criteria established below. In addition, the occupancy review and response process for properties in the off-Property Area of Concern will be terminated once an individual property either meets termination criteria described below or it is determined that a remedy is not warranted. These properties will be included in the annual report until demonstration is made that applicable standards have been met. The achievement of termination criteria indicates that vapor intrusion from groundwater emanating from the Property no longer poses an unacceptable hazard or risk at each residence.

Home Avenue Redevelopment, LLC the City of Dayton, or Transferee (as defined in the O&M Agreement) will determine when to collect samples to demonstrate that termination criteria are met. In order to evaluate attainment of termination criteria, the sub-slab depressurization system (SSDS) at each residence will be shut down (i.e. fan de-energized), and the indoor air and sub-slab vapor will be sampled. Four consecutive quarters of samples are required in order to demonstrate that termination criteria are met.

Termination of the SSDS at each residence may occur when concentrations of COCs in sub-slab vapor and indoor air at the residence demonstrate that applicable standards are met in accordance with the vapor intrusion standards. The applicable standards consist of the Ohio EPA VAP residential land use indoor air standards due to vapor intrusion for PCE and TCE and chloroform. A Property-specific residential background indoor air standard for chloroform (i.e.,  $11 \text{ ug/m}^3$ ) will be used at the following homes:

- 55 S. Ardmore Ave.;
- 59 S. Ardmore Ave.;
- 79 S. Ardmore Ave.;
- 61, 63A, 63B S. Ardmore Ave.;
- 75 S. Ardmore Ave.; and
- 110 S. Ardmore Ave.

The soil gas/sub-slab vapor screening levels were derived from the residential indoor air standard for each COC and the default attenuation factor of 0.03.

If, at a residence, both the sub-slab vapor concentrations and the indoor air concentrations exceed one or more of the VAP applicable standards for indoor air or sub-slab vapor, the operation of the SSDS must continue. However, if at a residence, the sub-slab vapor concentrations do not exceed the screening criteria, but the indoor air concentrations exceed one or more of the VAP applicable standards, a weight-of-evidence approach may be applied to demonstrate that indoor air exceedances are not related to the subsurface vapor concentrations. If it is determined by Home Avenue Redevelopment, LLC the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) that the residence meets applicable standards, this must be verified by collecting four consecutive quarters of samples. If four consecutive quarters of samples demonstrate that the residence meets applicable standards, or alternatively, if a weight of evidence demonstration that concentrations of COCs in sub-slab vapor do not pose an unacceptable hazard or risk is acceptable to Ohio EPA, then termination of the SSDS at that residence may be implemented.

As indicated on Figure 4, the occupancy review and response process will discontinue for an individual property within the Area of Concern if it is demonstrated that mitigation is not warranted, or if the owner of the individual property has been non-responsive or has denied access. If the property owner has not responded to the initial certified letter request, an additional certified letter will be sent. If the property owner is non-responsive, then Home Avenue Redevelopment, LLC, the City of Dayton, its designee, or Transferee (as defined in the O&M Agreement) will contact Ohio EPA for additional support. In the case of a non-responsive owner or denied access, the occupancy review and response process will resume if the property ownership changes unless other termination criteria have been met. If access has been denied or a property owner has been unresponsive, a certified letter will be sent on an annual basis reiterating the request for access. As a whole, the occupancy review and response process will terminate once a demonstration is made and accepted by Ohio EPA that applicable standards for the Area of Concern have been met as evidenced through soil gas sampling results or a weight-of-evidence demonstration. Home Avenue Redevelopment, LLC the City of Dayton, or Transferee (as defined in the O&M Agreement) will determine when to collect samples to demonstrate that termination criteria are met.

In addition, O&M obligations under this plan terminate once an individual property within the Area of Concern has been acquired by the City of Dayton through REAP or other means and has demonstrated that applicable standards have been met. This end point is based upon the City of Dayton's commitment to place any existing residential structure into the nuisance abatement queue for future demolition and to require through purchase and sale agreement(s) or other means that a vapor intrusion evaluation and/or mitigation, if necessary, is conducted prior to occupancy of new structures on the properties.

### SECTION 12.0 - REFERENCES

- Agency for Toxic Substances and Disease Registry (ATSDR). 2008. Health Consultation: Delphi Home Avenue Site, Dayton, Montgomery County, Ohio. United States Department of Health and Human Services, Public Health Service. August 19, 2008. 51 pp.
- Haley & Aldrich, Phase II Work Plan for Indoor Air Sampling and Mitigation, Delphi VOC Plume Site, February 2008.
- Haley & Aldrich, Addendum to the Phase II Work Plan for Indoor Air Sampling and Mitigation, Delphi VOC Plume Site, December 2011.
- Haley & Aldrich, Operation & Maintenance Plans, December 2007 to September 2012.
- Hull & Associates, Inc., Phase II Addendum: Remedial Activities Documentation and Post-Remedial Property-Specific Risk Assessment Report, August 2015.
- Ohio EPA, Sample Collection and Evaluation of Vapor Intrusion to Indoor Air for Remedial Response and Voluntary Action Programs, Ohio EPA Division of Emergency and Remedial Response, May 2010.
- United States Environmental Protection Agency, Phase 2 Work Plan for Indoor Air Sampling and Mitigation Delphi VOC Plume Site, Dayton, Ohio, February 14, 2008.

TABLES

### DAYTON AVIATION HERITAGE REDEVELOPMENT PROPERTY OPERATION AND MAINTENANCE PLAN

### TABLE 2

### SUMMARY OF THE STATUS OF RESIDENCES IN THE OFF-PROPERTY AREA OF CONCERN

Figure   F	Parcel Number 872 09362 0077	Property Address	Current Owner (Auditor's Web Page)	Does Parcel contain a Residence?	Is the Residence Equipped with a SSDS?	Is Residence Occupied? 1	Meets eligibility criteria for potential acquisition by City of Dayton <sup>2</sup>	Remedy Stage 3
1   1   1   1   1   1   1   1   1   1	872 00302 0074	CC CT NO.	Glenn Biggran	No				
10   10   10   10   10   10   10   10	770000000000	33, 37 Bish Ave.	Ruby Ann Newbourn	Yes	,		Yes	Quarterly Mastrothic for Construction
10   10   10   10   10   10   10   10	200000000000000000000000000000000000000	of Bish Ave.	Donte T. Crawford	Yes	CO.	Tes	No	Ongoing O&M of Existing System
100   100	7 2 07 302 0062		Formers + Channe Bank	601	No	Yes	No	N/A Waterway
100   100	72 09302 0061	68 Bish Ave.	Printers + Channel Bank	NO.			Year	Damping Ion - Chi
1.00   1.00	72 09302 0060	60 Bish Ave.	Artis - Cilizens bone.	No.			3	SAJONETY MONITORING FOR CONSTRUCTIO
1.   1.   1.   1.   1.   1.   1.   1.	72 09302 0059	R72 00302 0050	William I. Boggs, Jr	Yes	No	02	200	Guerredy Monitoring for Construction
1.00   1.00	72 09302 005R	4000 4000	Tyonne J. Corr	Yes	CN.	- 14	les	Quarterly Monitoring for Occupancy
10   10   10   10   10   10   10   10	70 00 200 00 CZ	32 bish Ave.	Kevin L. Artis	Yes		No	Yes	Quarterly Monitoring for Occupancy
State   Stat	4 09302 0037		Moude Jorden	100	No	No	Yes	Quarterly Monitoring for Occupant
55.5         4.2 Miled Accessive May Content bands (1100)         Project (1100)	2 09302 0056	48 Sish Ave.	Mende leading	Obe			Yes	Countries to Associate Sec.
13   33   33   34   34   34   34   34	2 09302 0055	42 Bish Ave.	Man / Constant of the	No			3	Septimenty Apparently for Construction
18   28   28   28   28   28   28   28	2 09302 0054	38 Bish Ave	mac/Crescent No. 2, LLC	Yes	°N	N.	3	Charletty Mentioning for Cenetives
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4.6         7.5.8. Authorine Ave.         Sharen Developy         Yes         Yes         Yes         No           4.6         7.5.8. Authorine Ave.         Donate Lyche Willigm         Yes         No         No         No           4.6         1.6. 25.4. Authorine Ave.         Donate Lychesom         Yes         No         No         No           4.1         2.5.5. Authorine Ave.         Donates Collected         Yes         No         No         No           9.0         4.5.5. Authorine Ave.         Outhorine Hance Collected Collected         Yes         No         No         No           10         4.6.5. 1.5. Authorine Ave.         Outhorine Hance Collected Colle	2 09302 0047	70 C A-J	Shawn Owensby	No			Yes	Quenterly Month ring for Construction
4.6         1.2.8. Additione Ave.         Helder Information         Yes         Yes         No           4.6         1.7.8. Additione Ave.         Dollace Horingment         Yes         No         No         No           4.6         5.6. Additione Ave.         Dollace Collector         Yes         No         No         No           4.1         5.5. Additione Ave.         Dollace Collector         Yes         No         No<	2 00302 0046	7 S. Aldmore Ave.	Shawn Owensby	Yes	Yas	3	No	Quarterly Mendoring for Construction
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1   10   10   10   10   10   10   10	000000000000000000000000000000000000000	/ S. Ardmore Ave.	Daunte Lyron Williams	X	sali	Yes	No	Ongoing O&M of Fristing System
43         61, GSA, Addinose Ave.         Dollot Johnson         Yes         Yes         No         No           14         5.5. Andinose Ave.         Ottoffeet H Mooren         Yes         Yes         No	7	67.S. Ardmore Ave.	Dalfas (plana)	531	No	No	No	Querterly Monitoring 6-0
41         SS Andrones Ave.         Deletes Collectory         Fest         Yes         No         No           10         4.0.5.1.5. Andrones Ave.         Onthet I Moore IIII         Yes         Yes         No         No           10         4.0.5. S. Andrones Ave.         Virgine I Ave.         Virgine I Ave.         Yes         No         No           10         4.0.5. S. Andrones Ave.         City of Depothy Livegon         Yes         No         No         Yes           11         4.0.5. Andrones Ave.         City of Depothy Livegon         Yes         No         No         No           2         4.0.5. Andrones Ave.         City of Depothy Livegon         Yes         No         No         No           3         5.0.5. Androne Ave.         City of Depothy Livegon         Yes         No         No         No           4         5.0.5. Androne Ave.         City of Depothy Livegon         No         No         No         No         No         No           5         6.0.5. Androne Ave.         City of Depothy Livegon         No         No         No         No         No         No         No         No           5         6.0.5. Androne Ave.         City of Depothy Livegon         No	+	51, 63A, 63B S. Ardmore Ave.	Dallas Johnson	ON			546	Operation Mental in Occupancy
41         5.5. Andrinore Ave.         Clarified Houser BL.         Fest. Fest.         No.	2 09302 0042	59 S. Ardmore Ave.	Daloras Colloway	Tes	Yes	Yes	o <sub>Z</sub>	Ourseles Oo in City of Construction
10   46   5   5   Andrinece Ave.   Willier Invacion III   Yes   Yes   No	09302 0041	55 S. Ardmore Ave.	Charles Callowdy	Yes	Yes	No	2	Cirgoling Co.m of Existing System
10   1.0	2 09302 0040	49, 51 S. Ardmore Ave.	Miss n woole III	Yes	Yes	No	2 2	Quarterly Monitoring for Occupancy
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2         50.5. Additione Ave.         Chips of Program         No         No         No           3         54.5. Additione Ave.         Chire of Program of Notice & Carrier Branderson         No         No         No         No         No           4         62.5. Additione Ave.         Carrie Brindenson         Carrie Brindenson         No         No <td>09302 0010</td> <td>AD S. Architect Acc</td> <td>Tribe C. Grd Lorothy L. Hussen</td> <td>No</td> <td></td> <td></td> <td>6</td> <td>Quarterly Monitoring for Occupancy</td>	09302 0010	AD S. Architect Acc	Tribe C. Grd Lorothy L. Hussen	No			6	Quarterly Monitoring for Occupancy
3         Sid S. Arkdinore Ave.         Cheryl Featment James Bond         Yes         No         No         Yes           6         64.6 S. Arkdinore Ave.         Carrie B. Hendeston         Tes         No         No<	09302 0012	50 S. Ardmore Aug	Lity of Dayton	No			ov.	Saumedy Abnitoting for Construction
4         SSS. Ardinores Ave.         Christyle Formann Theorem.         No.	093020013	54 S Author Company	James Bond	Yes	cN.	ANA	ov :	Costrollise through Siv Ownership
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6 64.0.6.5. Audimore Ave.         City of Daylon         No         No         No           8 7.2.5. Audimore Ave.         Somit Elimbouli         Yes         No         No         No         No           1 64.8.6.5. Audimore Ave.         Colf ped Daylon         No         No         No         No         Yes           1 64.8.6.5. Audimore Ave.         Benerant Potarielle LLC         No         No         No         Yes           2 5. Audimore Ave.         Benerant Potarielle LLC         No         No         No         Yes           3 5. Audimore Ave.         Benerant Potarielle LLC         No         No         No         Yes           4 6. 8.6. Audimore Ave.         Benerant Potarielle Lec Swin         No         No         No         Yes           2 5. Audimore Ave.         Benerant Potarielle Lec Swin         No         No         No         No         Yes           3 10.5. Ardimore Ave.         Visition A. Workington         No         No         No         No         No         No           4 11.5. Ardimore Ave.         Ardimore Ave.         Ardimore Ave.         Ardimore Ave.         No         No         No         No         No           5 1.2. Ardimore Ave.         Ardimore Ave.         Ardimore Ave. </td <td>09302 0015</td> <td>And Administration</td> <td>Carrie B. Henderson</td> <td>Yes</td> <td>Z</td> <td>1</td> <td>568</td> <td>Quertarly Manitaring for Construction</td>	09302 0015	And Administration	Carrie B. Henderson	Yes	Z	1	568	Quertarly Manitaring for Construction
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9	010000000	72 S. Ardniore Ave.	City of Dayton	New	ON	No	ON	Quarterly Monitoring for Organia
0.1         8.8.5. Architecte Ave.         Matrice R Vivight         No         No         Ves           2.         8.8.5. Architecte Ave.         Beneficial Evillation Included and the control of the control	09302 0019	76, 78 S. Ardmore Ave.	CGI Properties LLC	2			No	Controlled through little Demonster
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5 11/2 S. Ardinore Ave.         Mesis Lee Scuin         Yes         No         Frsh           5 11/2 S. Ardinore Ave.         Wildliffor Mexisper         No         No         No         No           1 12/2 S. Ardinore Ave.         Notality meeting         No         No         No         No           1 12/2 S. Ardinore Ave.         Notality meeting         No         No         No         No           1 12/2 S. Ardinore Ave.         Ciry of Decyton         No         No         No         No           1 12/2 S. Ardinore Ave.         Veronice Mource         Yes         No         No         No           1 12/2 S. Ardinore Ave.         Veronice Mource         Yes         No         No         No           1 12/2 S. Ardinore Ave.         Veronice Mource         Yes         No         No         No           1 12/2 S. Ardinore Ave.         Veronice Mource         Yes         No         No         No           1 12/2 S. Ardinore Ave.         Artiflecte Galloce Sr.         Yes         No         No         No           1 12/2 S. Ardinore Ave.         Artiflecte Galloce Sr.         Yes         No         No         No           1 11/2 S. Ardinore Ave.         Freddile Galloce Sr.         Yes         No	7000 00160	110 C 4-1	City of Dayton	No			220	Ougsterly Mostlading for Contraction
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12.55. Ardinnose Ave.   Motility Montaion   No.   No	02102 0020	1 4 S. Ardmore Ave.	Willie A. Washington	Yes	50	ON	Yes	Quarterly Monitoring for Occupancy
126.5. Artiflatore Ave.   Starting   Notine B. Celebray   Notine B. Ce	02007040		Marilyn Marrison	2	ON	No	No	Quarterly Monitoring for Car
126 S. Ardinore Ave.   Steve Naigle   Ves   Ve	091020024	122 S. Ardmore Ave.	Karin P. Getschow	C	1		Yes	Cheritage of Manifeston in Company
131 S. Ardinoce Ave.	09102 0023	126 S. Ardmore Ave.	Georgia Maria	ON.			Vess	Charles I. M. Common May Co. L. (1982) 12 Fight
12.5. Ardinore Ave.   Ametric Locyton   No.	39102 0022	130 S. Ardmore Ave.	Discost Discost	Yes	No	No	CZ	demistry Mentioning for Carshardien
12.5. Audimore Ave.	00102 0000	129 S. Ardmore Ave.	Amount A B	No			Z	woulderly monitoring for Occupancy
12.5. Actinone Ave.   Venomic Montes   Yes   No   No   No   No   No   No   No   N	09102 0010	125 S. Ardmore Ave.	World A Drown	Yes	No	Yes	2	Colorabled mrough Lity Owenship
117.5. Ardimore Ave.	09102 0011	121 S. Ardmore Assis	veronica Morcos	Yes	Yes	No	24	N/A - Not Warranted
113.5. Actiones Ave.	09102 0012	117 S. Ardmore Aug	Veranica Marcos	No			No	Quarterly Monitoring for Occupancy
Trock Authoric Ave.   Freddie Gutteey   Yes   Yes   Yes   No	09102 0013	113 C Address Ave.	Alfred Cooper Sr.	Yes	Yes	Ma	S	Oscertedly Montacing for Construction
No	09102 0014	100 C September Ave.	Freddie Gultney	Yes	Yes	Var	ov :	Quarterly Monitoring for Occupancy
Authority St. Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Law of the Consolidated Machinery Maren, Inc., No., and Consolidated Maren, Inc., No., and C	30108 003K	D .	George W. Jucker	ON		CO.	ON	Ongoing O&M of Existing System
Consolidated Machinery Movers, Inc. No. 1981	9108 8016	141 Expension Ch	City of Dayton	No - not residential *			Yes	Quarterly Monitoring for Construction
THE PROPERTY OF THE PROPERTY O		and crossdage on	Consolidated Machinery Mayers, Inc.	No - not residential		1	NG	Controlled through City Owahrston

Gray text represents a vaccent (unimproved), but Raitroad parcels are excluded from the table. N/A = Not applicable. Oskin = O

Unoccupied status of residences that are not equipped with SSDS is based upon information provided by City of Dayton on 1/10/2017 and 2/08/2016.

Potential acquisition information provided by the City of Dayton - Department of Planning & Community Development on 12/16/2016.

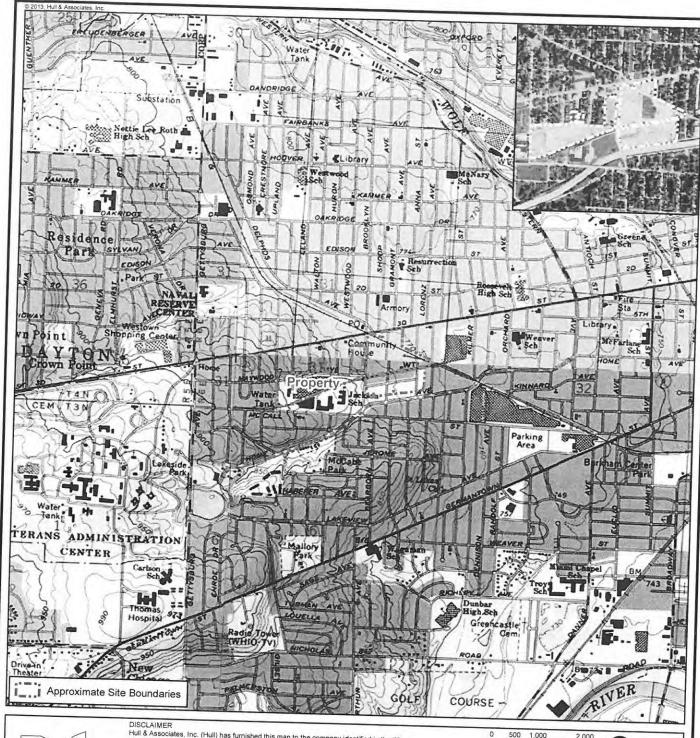
Initial transfer of construction permit status for vaccom parcels conducted on December 20, 2016.

Land use description is not residential forth Auditor's Web Page)

Montgomery County records show parcel linked to R72 09108 0001, 241 S Marion along with 0009-0017 parcel #s

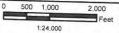
not applicable

**FIGURES** 





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### Quad: Dayton North & Dayton South

Source: The topographic map was acquired through the USGS Topographic Map web service.

The aerial photo in the inset was acquired through the ESRI Image web service. Aerial photography dated 2012.



6397 Emerald Pkwy Suite 200 Dublin, Ohio 43016 Phone: (614) 793-8777 Fax: (614) 793-9070 www.hullinc.com Dayton Aviation Heritage Redevelopment Project Operation and Maintenance Plan

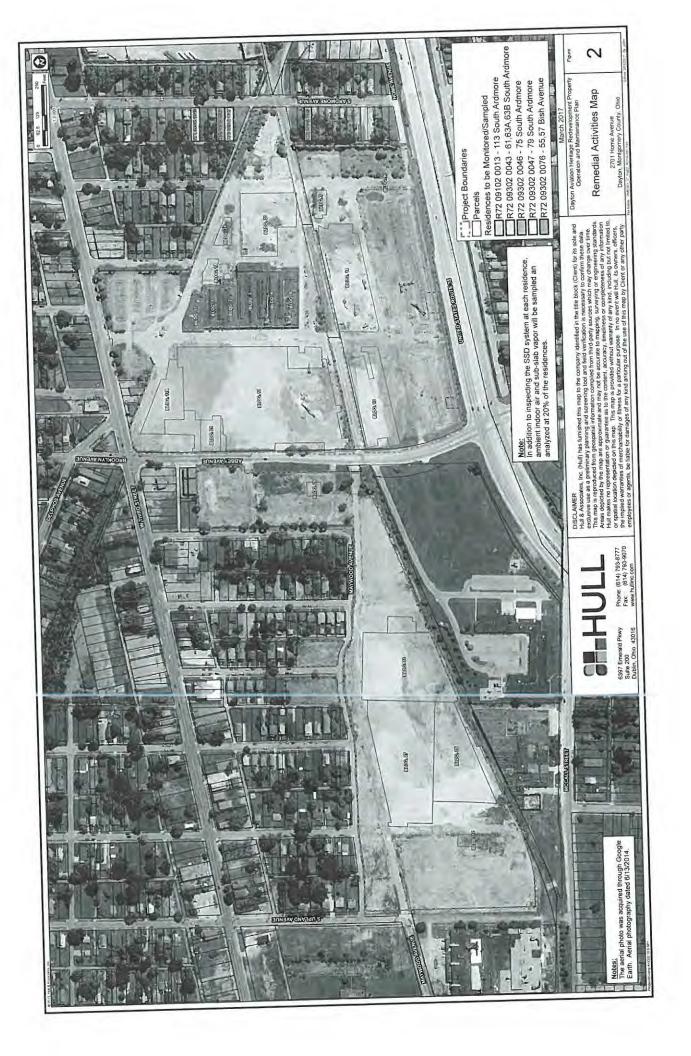
### Property Boundary Map

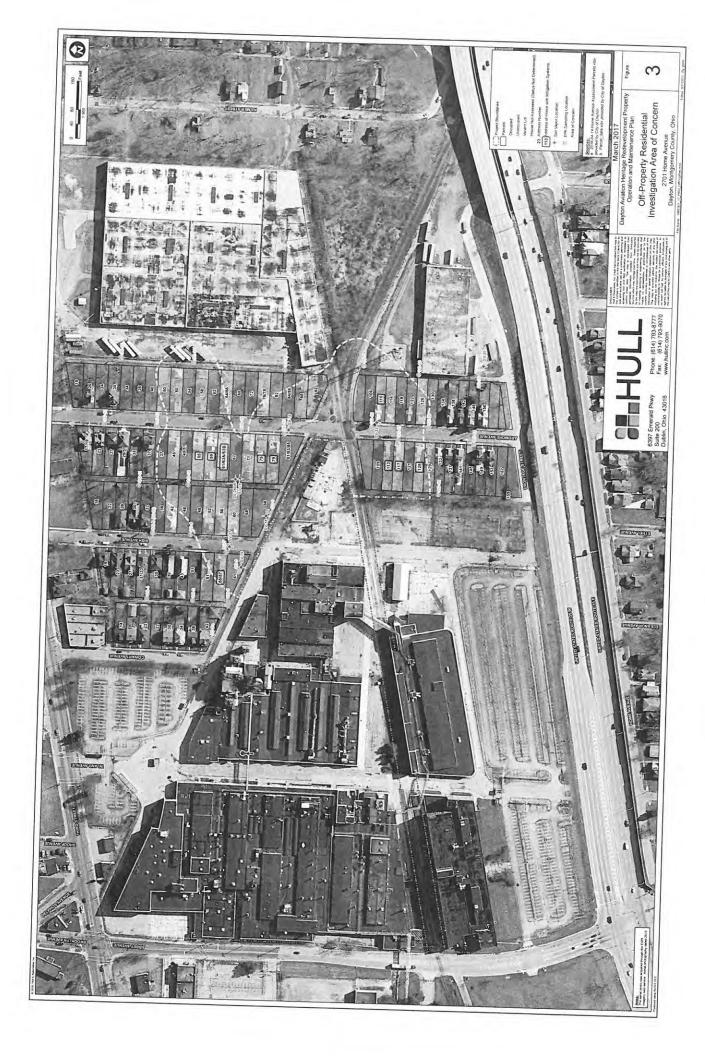
2701 Home Avenue Dayton, Montgomery County, Ohio Date:

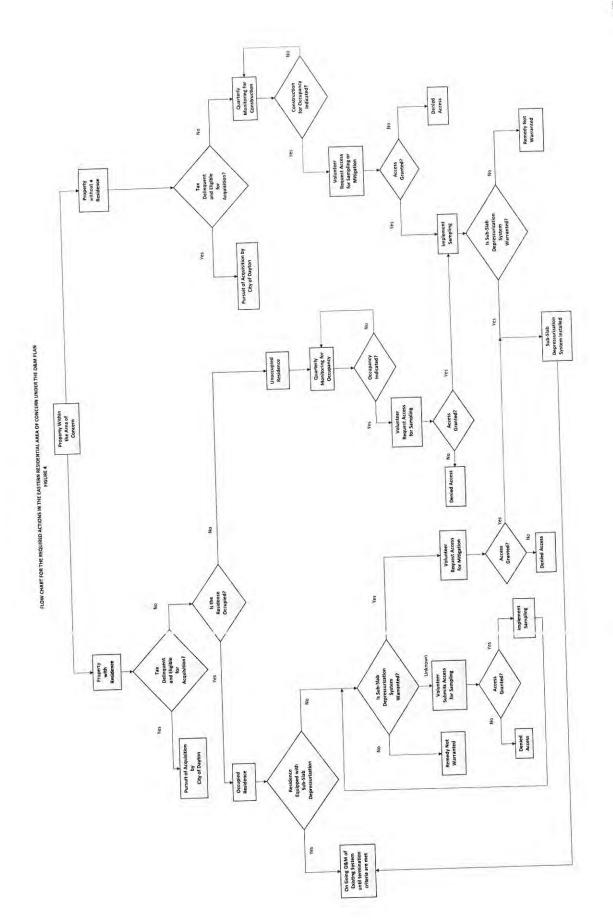
March 2017

File Name: HME001\_17\_Fig01\_PropLocMap.mxd Edited: 3/31/2017 By: jslifer Figure 1

Produced using ArcGIS 10.0 SP1







### APPENDIX A

Derivation of a Background Concentration for Chloroform in Indoor Air for the Assessment of Off-Property Residential Receptors at the Dayton Aviation Heritage Redevelopment Project Property

### APPENDIX A:

### DERIVATION OF A BACKGROUND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS AT THE DAYTON AVIATION HERITAGE REDEVELOPMENT PROJECT PROPERTY

### 1.0 PROPERTY BACKGROUND AND OBJECTIVES

An Ohio Voluntary Action Program (VAP) No Further Action (NFA) Letter was submitted to the Ohio Environmental Protection Agency (Ohio EPA) with a request for a Covenant Not to Sue on January 7, 2016 for the Dayton Aviation Heritage Redevelopment Project Property (formerly known as the Delphi Home Avenue facility), located at 2701 Home Avenue in Dayton, Montgomery County, Ohio (Property). Pursuant to the Ohio Administrative Code (OAC) 3745-300-07(E)(6)(e), the VAP determinations specified in OAC 3745-300-07(F)(1) are applicable to receptor populations off the Property that are reasonably anticipated to be exposed to chemicals of concern (COCs) that may have emanated from the Property through groundwater migration, volatilization, and other mechanisms which may transport COCs from the Property to off-Property locations.

Prior to the submittal of the VAP NFA letter, the United States Environmental Protection Agency (U.S. EPA) Region 5 conducted a removal action under an administrative order of consent issued to the Delphi Corporation on November 1, 2007. Under this action, the potential for vapor intrusion from volatile COCs in groundwater to impact off-Property residential receptors was evaluated. As part of U.S. EPA's investigation, the Agency for Toxic Substances and Disease Registry (ATSDR) was contracted to complete a public health consultation (PHC) 1. In its PHC, the ATSDR recommended health-based short-term and longterm screening levels for residential indoor air and sub-slab soil gas to U.S. EPA for several COCs, including tetrachloroethene (PCE), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), and chloroform, hereafter referred to as the vapor intrusion chemicals of concern (VI-COCs). These long-term screening levels formed the basis of additional remedial actions, including the installation, monitoring and maintenance of sub-slab depressurization systems (SSDS) at a number of residences, conducted by the Delphi Corporation and its successors. These obligations were incorporated into the VAP NFA letter as engineering controls, and the long-term screening levels established by ATSDR were maintained as the monitoring criteria in the VAP Operation and Maintenance Plan (O&M Plan). However, the Operation and Maintenance Agreement (O&M Agreement) required that a demonstration of compliance with VAP applicable standards (i.e., residential indoor air standards) prior to termination of the O&M obligations at any residence.

Ohio EPA provided comments on the NFA letter in an Initial Notice of Deficiency (INOD) and Reviewer Comments letter from Mr. Joseph Smindak (Ohio EPA Senior Site Coordinator) to Ms. Laura Funk (AMEC Foster Wheeler Environment and Infrastructure, Inc.), Mr. Bradford S. White (Home Avenue Redevelopment, LLC) and Ms. Veronica Morris (City of Dayton) dated March 24, 2016. Ohio EPA stated (under Issue B, Comment 4) that the monitoring criteria subject to the O&M Agreement need to be changed to the VAP applicable standards, in *lieu* of the values established by U.S. EPA under the prior (2008-2010) removal action.

Agency for Toxic Substances and Disease Registry (ATSDR). 2008. Health Consultation for the Delphi Home Avenue Site (Vapor Intrusion), Dayton, Montgomery County, Ohio, EPA Facility ID: OHN000510205. Prepared by the Ohio Department of Health under Cooperative Agreement with the U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation, August 19, 2008.

The VAP applicable standards for PCE, 1,1,1-TCA and TCE in OAC 3745-300-08 (effective August 1, 2014) are based upon toxicity criteria developed by U.S. EPA in the time subsequent to the preparation of the PHC by ATSDR. Therefore, the VAP residential indoor air generic numerical standards (GNS) for PCE, 1,1,1-TCA and TCE (from OAC 3745-300-08, Appendix A, Table IV, effective August 1, 2014) will be incorporated into the O&M Plan as monitoring and termination criteria. However, the long-term screening levels developed by ATSDR for chloroform were based on the inhalation unit risk factor established by U.S. EPA on June 30, 1988, which is still the current criterion listed in the Integrated Risk Information System (IRIS)<sup>2</sup>. ATSDR developed its long-term screening level based upon the relevant lifetime toxicity criteria and considerations regarding possible confounding sources of chloroform in indoor air (i.e., not related to vapor intrusion from chloroform concentrations in groundwater that may have emanated from the Property). Therefore, it is proposed here that the ATSDR long-term screening level for residential indoor air (2.2 ppbV, or 11 ug/m³) be adopted as the VAP Property-specific standard for chloroform in residential indoor air.

In accordance with OAC 3745-300-09(A) effective August 1, 2014, the Volunteer may use Property-specific risk assessment procedures to determine applicable standards in place of any GNS. As discussed below, the measured levels of chloroform in indoor air provide justification for adoption of the ATSDR long-term screening level as a background level-based Property-specific residential indoor air standard for the evaluation of off-Property residential receptors. In accordance with OAC 3745-300-07(H) effective August 1, 2014, background levels may be established as the applicable standard to demonstrate that COCs are not the result of current or past activities involving treatment, storage or disposal of a hazardous substance. This definition of background is consistent with that provided by U.S. EPA in its recent vapor intrusion guidance, which states that background "refers to a vapor-forming chemical(s) or location(s) that is (are) not influenced by releases from the site, and is usually referred to as naturally occurring or anthropogenic"<sup>3</sup>. Although chloroform is associated with past activities on the Property, the confounding sources of chloroform in indoor air from typical residential uses discussed below must be considered in the evaluation of and termination of the remedial systems (SSDS); chloroform in indoor air from various confounding sources (i.e., those sources not associated with the subsurface) cannot be effectively controlled by the sub-slab depressurization system.

Therefore, it is important to establish a Property-specific standard for chloroform based on background levels of chloroform that may be reasonably expected in a residence from multiple sources not related to releases of hazardous substances or petroleum at the Property. Indoor air concentrations of chloroform in excess of the background-based standard may be indicative of chloroform from a subsurface source associated with the release of hazardous substances or petroleum at the Property. The sections below provide a more detailed discussion of the proposed Property-specific chloroform standard, including physical-chemical properties of chloroform, the multiple sources of chloroform in indoor air, and the basis for the background-based Property-specific standard.

### 2.0 CHLOROFORM: CHEMICAL CHARACTERISTICS, AMBIENT SOURCES, AND BACKGROUND LEVELS AS DESCRIBED IN LITERATURE SOURCES

Chloroform is a clear, colorless liquid with a pleasant non-irritating odor and sweet taste. Chloroform is a naturally-occurring substance, although most of the chloroform in the environment may be attributable to

U.S. EPA Integrated Risk Information System (IRIS). Chemical assessment summary for chloroform. The inhalation unit risk factor of 2.5E-05 per µg/m³ (Section II.C.1.1) was posted on 06/30/1988 (Section VII); available online at: <a href="https://cfpub.epa.gov/ncea/iris/iris\_documents/documents/subst/0025\_summary.pdf">https://cfpub.epa.gov/ncea/iris/iris\_documents/documents/subst/0025\_summary.pdf</a>

United States Environmental Protection Agency (U.S. EPA). 2015. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air. OSWER Publication 9200.2-154. Section 6.4.1, pp. 88-89; and Section 10, pp. 189-190.

anthropogenic sources4. Chloroform is the most commonly occurring trihalomethane (THM)5, and was one of the first inhaled anesthetics used during surgery, but is no longer used for anesthesia today. Nearly all chloroform made in the U.S. is utilized to make other chemicals; today 95% of the output is in the manufacture of hydrochlorofluorocarbon-22 (HCFC-22), which is used in refrigerants<sup>6</sup>. Chloroform is also formed as a disinfection by-product when chlorine is added to drinking water and municipal sewage<sup>7</sup>. Chloroform is released into indoor air by vaporization from chlorinated tap water, chlorinated pools and spas, and can be emitted as an indirect byproduct during use of products containing other chlorinated compounds (e.g., consumer products containing chlorine used for bleaching or sanitization purposes such as washing clothes and toilet bowl sanitization)8. Chlorine is added to most municipal drinking water systems and waste water to destroy bacteria, and for that reason is also often added to swimming pools. Each of these processes results in chloroform as a by-product. Cooling water in electric power generating plants will also result in direct release of chloroform to the environment.

Chloroform volatilizes very quickly into the air and then breaks down very slowly in air. Volatilization of chloroform from both soil and groundwater is an important environmental fate process, based on the Henry's Law Constant of  $1.5 \times 10^{-1}$  (unitless)<sup>10</sup>. Once transferred to air, chloroform has a residence time in the atmosphere of several months and is removed from the atmosphere through chemical transformation<sup>11</sup>. Based upon its physical-chemical properties (i.e., vapor pressure of 197 mm Hg at 25°C), once released to air chloroform would exist solely as a vapor in the atmosphere, and will be degraded by reaction with photochemically-produced hydroxyl radicals with an estimated half-life of 150 days<sup>12</sup>.

As stated above, a significant primary source of chloroform in indoor air is from chlorinated tap water. Based on studies conducted by the California Air Resources Board (CARB) in 1985, it was determined that the largest source of chloroform emissions was associated with drinking water chlorination, accounting for approximately 51% of total annual chloroform emissions in the South Coast Air Basin<sup>13</sup>. U.S. EPA's Total Exposure Assessment Methodology (TEAM) Studies demonstrated that chloroform in indoor air was present at four to five times the outdoor air level, and suggested that taking showers and breathing air where chloroform has been released from shower water would result in even higher levels14. The studies conducted by U.S. EPA observed an increase in median concentrations of indoor versus outdoor air, which was considered consistent with assumptions concerning daily water use and likely release of chloroform to indoor

World Health Organization (WHO). 2004. Trihalomethanes in Drinking-water, Background document for

NLM, 2016, Op. cit., Environmental Fate/Exposure Summary Section.

WHO, 2004, Op. cit. Section 1.5.

NLM, 2016, Op. cit., Environmental Fate Section, Atmospheric Fate.

Agency for Toxic Substances and Disease Registry. 1997. Toxicological Profile for Chloroform. Section 5.1, p. 189. United States Department of Health and Human Services, Public health Service. September 1997. Available on-line at: http://www.atsdr.cdc.gov/ToxProfiles/tp.asp?id=53&tid=16

development of WHO Guidelines for Drinking-water Quality, WHO/SDE/WSH/3.04/64. U.S. National Library of Medicine (NLM). 2016. Toxicology Data Network (TOXNET), Hazardous Substances Database (HSDB) Record for Chloroform (CASRN 67-66-3), accessed online June 2016 at: bin/sis/search2/f?./temp/~5mJpmh:1@

ATSDR, 2008, Op. cit., p. 17. Goodguide. 2016. Scorecard for Chloroform. Available at: http://scorecard.goodguide.com/chemicalprofiles/html/chloroform.html

Ohio Environmental Protection Agency (Ohio EPA). 2016. Voluntary Action Program Chemical Information Database and Applicable Regulatory Standards (CIDARS) spreadsheet, May 26, 2016.

Rogozen, Michael B., et al. 1988. Sources and Concentrations of Chloroform Emissions in the South Coast Air Basin. Prepared for the State of California air Resources Board, SAIC-86/1105, April 1988. Section 2.1.5, pp.

Wallace, L. A. 1997. Human Exposure and Body Burden for Chloroform and Other Trihalomethanes. Critical Reviews in Environmental Science and Technology, 27(2): 113-194. January 1997.

air<sup>15</sup>. Concentrations of chloroform in outdoor ambient air in remote areas of the U.S. range from 0.1 to  $0.25~{\rm ug/m^3}$ ; contrastingly, in urban and source-dominated areas, concentrations of chloroform in outdoor ambient air ranged from 0.3 to 9.9  ${\rm ug/m^3}$  and 4.1 to 110  ${\rm ug/m^3}$ , respectively <sup>16</sup>. The 90th percentile values for measured overnight indoor air concentrations of chloroform at six sites in New Jersey and California ranged from 2.4 to 16  $ug/m^3$  between September 1981 and June 1984 during the TEAM Study  $^{17}$ . In a survey of 757 randomly-selected one-family houses in Canada sampled over a 10-month period, the mean level of chloroform in indoor air was  $4.1~\text{ug/m}^3$  with an observed maximum concentration of  $69~\text{ug/m}^3$ . An average indoor air concentration of chloroform of  $0.3~\text{ug/m}^3$  was reported in a single family house and concentrations of 1 to 3.4  $ug/m^3$  were reported in an apartment compared to 0.2  $ug/m^3$  in outdoor air, showing that indoor air concentrations may substantially exceed outdoor air concentrations due to other indoor sources; concentrations in buildings other than residences in this study (e.g., restaurants and shops) ranged from 2 to 10  $ug/m^3$  of chloroform  $^{18}$ . The CARB conducted a study in 1990 of 128 households in Woodland, California, which exhibited a  $90^{th}$  percentile indoor air concentration of  $2.7 \text{ ug/m}^3$ ; the CARB estimates the indoor air inhalation of chloroform, based on median personal air exposure ranges from 0.6 to 30 ug/day with upper exposures ranging from 50 to 100 ug/day through drinking chlorinated water <sup>19</sup>. U.S. EPA also carried out studies to measure increased levels of chloroform in indoor air due to the use of hot water. Results indicate that washing clothes and dishes significantly increases levels of chloroform indoors. Indoor air levels of chloroform were also observed to rise significantly in association with use of hot water; during periods when hot water was used intensively, indoor air levels rose to 31  $\mu$ g/m<sup>3</sup> of chloroform<sup>20</sup>. Summarizing information from three cited sources, the ATSDR stated that "(t)ypical median indoor air concentrations of chloroform range from [approximately]  $2x10^{-4}$  to  $4x10^{-3}$  ppm $^{\prime\prime}2^{-1}$ ; this corresponds to a range of 1  $ug/m^3$  to 20  $ug/m^3$ .

### EVALUATION OF RESIDENCES WITHIN THE RESIDENTIAL AREA OF CONCERN 3.0

Under the Consent Order between U.S. EPA Region 5 and the Delphi Corporation, baseline sampling of subslab vapor and indoor air was conducted at numerous residences within the residential area to the east of the Property. At those residences where the sub-slab vapor concentrations of one or more of the VI-COCs exceeded the sub-slab vapor screening levels, and indoor air concentrations of one or more of the vapor intrusion chemicals of concern exceeded its respective long-term indoor air screening levels, remedial SSDS were installed, monitored and maintained by Delphi Corporation and its successors. Therefore, the sub-slab and indoor air concentrations reported from the baseline sampling and subsequent monitoring events provides a basis to evaluate the levels of the VI-COCs before and after the installation of the SSDS. This evaluation is provided below.

Three lines of evidence support the finding that chloroform levels in indoor air at concentrations above the VAP residential indoor air standard of 1.1  $\mu g/m^3$  are not associated with COC migration in the subsurface

International Programme on Chemical Safety (IPCS). 1994. Environmental Health Criteria 163 for Chloroform. Published under the joint sponsorship of the United Nations Environment Programme, the International Labour Organisation, and the World Health Organization. Accessed 2016 and available at: http://www.inchem.org/documents/ehc/ehc/ehc163.htm#SubSectionNumber:5.1.2

WHO, 2004, Op. cit. Section 3.1

Wallace, L.A. 1987. The Total Exposure Assessment Methodology (TEAM) Study: Summary and Analysis: Volume I. U.S. EPA Office of Research and Development, EPA/600/6-87/002a. June 1987. Table 46, p. 97. 18

IPCS, 1994, Op. cit., Section 5.1.2

California Air Resources Board. 1990. Proposed Identification of Chloroform as a Toxic Air Contaminant, Technical Support Document, Part A, Exposure Assessment. September 1990. Section F.1, p. 54.

<sup>20</sup> Wallace L.A. 1989. The Total Exposure Assessment Methodology (TEAM) Study: An Analysis of Exposures, Sources, and Risks Associated with Four Chemicals. Journal of the American College of Toxicology, Volume 8, Number 5, pp. 883-895. January 1989.

ATSDR, 1997. Op. cit., Section 5.4.1, p. 202.

and subsequent vapor intrusion, but rather are likely to be associated with confounding sources (as described in Section 2.0 above):

- Whereas chloroform has been identified at concentrations above the VAP indoor air standard in residences with operating SSDS, concentrations of PCE, 1,1,1-TCA and TCE in indoor air are effectively controlled by the SSDS as evidenced by post-remedy sampling results.
- 2. Whereas chloroform has been identified at concentrations above the VAP indoor air standard in residences with operating SSDS, the paired sub-slab soil vapor concentrations of chloroform are reported below the VAP sub-slab screening level (i.e.,  $37 \text{ ug/m}^3$ , based on the VAP residential indoor air standard of 1.1 ug/m³ and the EPA default attenuation factor of  $0.03^{22}$ ).
- 3. A statistical evaluation of indoor air chloroform concentrations within the residential area of concern was the basis of an indoor air background concentration of chloroform not related to subsurface sources, and provides several estimates of a Property-specific background concentration substantially above the VAP residential indoor air standard of 1.1 ug/m³.

Each of the three lines of evidence is discussed in the sections, below.

3.1 Chloroform has been identified at concentrations above the VAP indoor air standard in residences at which concentrations of PCE, 1,1,1-TCA and TCE in indoor air are effectively controlled by the SSDS remedies.

At seven residential structures within the residential area of vapor intrusion concern located to the east of the Property, baseline sampling conducted under the consent order indicated that one or more VI-COCs were detected in indoor air at concentrations above its respective VAP residential indoor air standard. After installation of the SSDS, the concentrations of 1,1,1-TCA, PCE and/or TCE were effectively controlled by the SSDS, although indoor air concentrations of chloroform were found to exceed its respective VAP residential sindoor air standards at one or more monitoring events, as indicated by subsequent monitoring events conducted under the consent order and subsequently as part of the voluntary action. These seven residential structures included 55 S. Ardmore Avenue, 59 S. Ardmore Avenue, 61, 63A, 63B S. Ardmore Avenue, 75 S. Ardmore Avenue, 79 S. Ardmore Avenue, 81, 83, 85 S. Ardmore Avenue, and 110 S. Ardmore Avenue. Furthermore, concentrations of VI-COCs reported in sub-slab soil gas and indoor air samples collected at 71 S. Ardmore follow a similar pattern and are indicative that chloroform in indoor air may be attributed to confounding sources.

1. **55 S. Ardmore Avenue:** As shown in Table A-1, baseline sampling conducted on 03/04/2008 showed TCE detected in indoor air at 13.44 ug/m³, above the VAP residential indoor air standard of 2.1 ug/m³. After installation of the SSDS, TCE was reported at 2.2 ug/m³ at the first 30-day post-treatment monitoring event conducted on 06/24/2008. The concentrations of TCE in indoor air declined at each subsequent post-treatment and annual monitoring event, at concentrations ranging from detected at 1.77 ug/m³ (on 07/30/2008) to non-detected at <0.81 ug/m³ (on 03/18/2011). Chloroform in indoor air was reported at 1.03 ug/m³ during the baseline sampling event, slightly below the VAP residential indoor air standard of 1.1 ug/m³. After installation of the SSDS, the indoor air concentrations of chloroform varied from non-detected at <0.78 ug/m³ to 13.67 ug/m³. At three sampling events, the indoor air concentrations of chloroform were reported at 1.42 ug/m³ (on

<sup>&</sup>lt;sup>22</sup> U.S. EPA. 2015. Op. cit. Section 6.5.3, pp.108-111, and Table 6-1, p. 110.

06/24/2008),  $1.22~\text{ug/m}^3$  (on 07/30/2008) and  $13.67~\text{ug/m}^3$  (on 05/19/2009); each of these concentrations was above the VAP residential indoor air standard of  $1.1~\text{ug/m}^3$ , but within the range of median indoor air concentrations of  $1~\text{ug/m}^3$  to  $20~\text{ug/m}^3$  as cited by ATSDR<sup>23</sup>.

- 2. **59 S. Ardmore Avenue:** As shown in Table A-2, baseline sampling conducted on 03/06/2008 showed TCE detected in indoor air at 22.57 ug/m³, above the VAP residential indoor air standard of 2.1 ug/m³. After installation of the SSDS, TCE was reported at 0.75 ug/m³ at the first 30-day post-treatment monitoring event conducted on 07/30/2008. The concentrations of TCE in indoor air was reported as non-detected at all six subsequent monitoring events (conducted between 11/17/2008 and 08/05/2014). Chloroform in indoor air was reported at 3.27 ug/m³ during the baseline sampling event, above the VAP residential indoor air standard of 1.1 ug/m³. After installation of the SSDS, the indoor air concentrations of chloroform varied from non-detected at <0.78 ug/m³ to 3.13 ug/m³. At three sampling events, the indoor air concentrations of chloroform were reported at 1.12 ug/m³ (on 07/30/2008), 2.3 ug/m³ (on 05/09/2009) and 3.13 ug/m³ (on 02/17/2010); each of these concentrations was above the VAP residential indoor air standard of 1.1 ug/m³, but within the range of median indoor air concentrations of 1 ug/m³ to 20 ug/m³ as cited by ATSDR²4.
- 3. 61, 63A and 63B S. Ardmore Avenue: As shown in Table A-3, baseline sampling conducted on 04/21/2007 and 05/19/2007 at the three residential units showed TCE detected in indoor air at concentrations of 16.12  $ug/m^3$ , 2.10  $ug/m^3$ , and 2.36  $ug/m^3$ , respectively, at or above the VAP residential indoor air standard of 2.1  $\mu g/m^3$ . After installation of the SSDS, TCE was reported as non-detected in indoor air at all subsequent monitoring events in all three units, with the exception of a reported detection of 13.97  $ug/m^3$  at unit 63A on 12/17/2008. Chloroform concentrations in indoor air at the three units were reported at 16.11  $ug/m^3$ , 3.08  $ug/m^3$ , and 3.32  $ug/m^3$ , respectively, each above the VAP residential indoor air standard of 1.1  ${\rm ug/m^3}$ . After installation of the SSDS, the indoor air concentrations of chloroform varied from non-detected at  $<0.78~\text{ug/m}^3$  to  $10.74~\text{ug/m}^3$ . At five sampling events, indoor air concentrations of chloroform were reported at 2.54  $\mbox{ug}/\mbox{m}^3$ (at unit 63A on 02/14/2008), 1.37  $ug/m^3$  (at unit 61 on 06/24/2008), 3.71  $ug/m^3$  (at unit 63A on 02/14/2008), 3.71  $ug/m^3$  (at unit 61 on 06/24/2008), 3.71  $ug/m^3$ unit 63A on 06/24/2008), 10.74  $ug/m^3$  (at unit 63A on 12/17/2008), and 1.71  $ug/m^3$ (at unit 61 on 03/18/2011); each of these concentrations was above the VAP residential indoor air standard of 1.1  ${\rm ug/m^3}$ , but within the range of median indoor air concentrations of 1  $ug/m^3$  to 20  $ug/m^3$  as cited by ATSDR<sup>25</sup>.
- 4. 71 S. Ardmore Avenue: As shown in Table A-4, baseline sampling conducted on 05/02/2007 showed concentrations of chloroform (1074.27 ug/m³) and TCE (1074.85 ug/m³) substantially above the sub-slab vapor screening levels of 37 ug/m³ and 70 ug/m³), respectively. Although an SSDS was not installed at this residence, the concentrations of both chloroform and TCE in the sub-slab vapor declined substantially at each of the three subsequent monitoring events, presumably from nearby remedial activities. Both chloroform and TCE were reported at concentrations below the sub-slab vapor screening levels in the second post-baseline monitoring event, and were reported as non-detected in the third post-baseline monitoring event. In addition, baseline sampling showed TCE detected in indoor

<sup>&</sup>lt;sup>23</sup> ATSDR, 1997. Op. cit., Section 5.4.1, p. 202.

<sup>24</sup> Ibid.

<sup>25</sup> Ibid.

air at  $1.24~\rm ug/m^3$ , below the VAP residential indoor air standard of  $2.1~\rm ug/m^3$ . TCE was reported as non-detected in indoor air at all subsequent monitoring events. Chloroform in indoor air was reported at  $2.1~\rm ug/m^3$  during the baseline sampling event, above the VAP residential indoor air standard of  $1.1~\rm ug/m^3$ . At subsequent monitoring events, the indoor air concentrations of chloroform varied from non-detected at  $<0.68~\rm ug/m^3$  to  $4.74~\rm ug/m^3$ . The detection of chloroform in indoor air at  $4.74~\rm ug/m^3$  during the February 12, 2008 monitoring event substantially exceeded the predicted indoor air concentration of  $0.249~\rm ug/m^3$ , based on the reported chloroform concentration of  $8.3~\rm ug/m^3$ .in the paired sub-slab vapor sample and an attenuation factor of 0.03. Therefore, chloroform was detected in indoor air at concentrations above the VAP residential indoor air standard of  $1.1~\rm ug/m^3$ , but within the range of median indoor air concentrations of  $1~\rm ug/m^3$  to  $20~\rm ug/m^3$  as cited by ATSDR<sup>26</sup>.

- 5. **75 S. Ardmore Avenue:** As shown in Table A-5, baseline sampling conducted on 05/05/2007 and 07/19/2007 showed TCE detected in indoor air at 0.86 ug/m³ and 13.44 ug/m³, respectively below and above the VAP residential indoor air standard of 2.1 ug/m³. After installation of the SSDS, TCE was reported as non-detected in all seven subsequent monitoring events. Chloroform in indoor air was reported at 1.42 ug/m³ and 4.88 ug/m³ during the two baseline sampling events, each above the VAP residential indoor air standard of 1.1 ug/m³. After installation of the SSDS, chloroform was detected at six of the seven monitoring events, at concentrations ranging from 1.56 ug/m³ to 3.27 ug/m³; each of these concentrations was above the VAP residential indoor air standard of 1.1 ug/m³, but within the range of median indoor air concentrations of 1 ug/m³ to 20 ug/m³ as cited by ATSDR<sup>27</sup>.
- 6. **79 S. Ardmore Avenue:** As shown in Table A-6, baseline sampling conducted on 05/05/2007 showed TCE detected in indoor air at  $1.56 \text{ ug/m}^3$ , below the VAP residential indoor air standard of  $2.1 \text{ ug/m}^3$ . TCE was reported as non-detected in both sampling events conducted after installation of the SSDS. Chloroform in indoor air was reported at  $1.27 \text{ ug/m}^3$  during the baseline sampling event, above the VAP residential indoor air standard of  $1.1 \text{ ug/m}^3$ . Chloroform was detected in indoor air at one of the two monitoring events conducted after installation of the SSDS, at  $1.50 \text{ ug/m}^3$ ; this reported concentration was above the VAP residential indoor air standard of  $1.1 \text{ ug/m}^3$ , but within the range of median indoor air concentrations of  $1 \text{ ug/m}^3$  to  $20 \text{ ug/m}^3$  as cited by ATSDR<sup>28</sup>.
- 7. 81, 83, 85 S. Ardmore Avenue: As shown in Table A-7, baseline sampling conducted on 04/26/2007 at two of the three residential units showed TCE detected in indoor air at concentrations of 3.12 ug/m³ and 1.07 ug/m³ at unit 81 and unit 85, respectively above and below the VAP residential indoor air standard of 2.1 ug/m³. At the 30-day post-treatment sampling event after installation of the SSDS, TCE was reported at concentrations of 0.75 ug/m³, 0.91 ug/m³ and 1.02 ug/m³ at each of three units, with each concentration was below the VAP residential indoor air standard. TCE was reported as non-detected at each of the three subsequent sampling events. Chloroform concentrations in indoor air were reported at 3.96 ug/m³ and 1.61 ug/m³ at unit 81 and unit 85, respectively, each above the VAP residential indoor air standard of 1.1 ug/m³. After installation of the SSDS, the

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

indoor air concentrations of chloroform varied from non-detected at <0.68 ug/m³ to 1.71 ug/m³. At four sampling events, indoor air concentrations of chloroform were reported at 1.51 ug/m³ (at unit 81 on 01/08/2008), 1.61 ug/m³ (at unit 83 on 01/08/2008), 1.71 ug/m³ (at unit 85 on 01/08/2008), and 1.42 ug/m³ (at unit 81 on 07/02/2008); each of these concentrations was above the VAP residential indoor air standard of 1.1 ug/m³, but within the range of median indoor air concentrations of 1 ug/m³ to 20 ug/m³ as cited by ATSDR²9.

- 8. 110 S. Ardmore Avenue: As shown in Table A-8, baseline sampling conducted on 05/04/2007 and 07/19/2007 showed PCE detected in indoor air at concentrations of  $54.97~\text{ug/m}^3$  (the average of duplicate sample concentrations  $54.27~\text{ug/m}^3$  and  $55.62~\text{ug/m}^3$  $ug/m^3$ ) and 128.88  $ug/m^3$ , respectively; each of these concentrations was above the VAP residential indoor air standard of 42 ug/m³. The baseline sampling event also showed concentrations of TCE of 1.76  $\mu g/m^3$  (the average of duplicate sample concentrations of  $1.70~{\rm ug/m^3}$  and  $1.83~{\rm ug/m^3})$  and  $3.93~{\rm ug/m^3}$ , respectively below and above the VAP residential indoor air standard of 2.1 ug/m³. After installation of the SSDS, PCE was reported at concentrations ranging from non-detected at  $< 0.95 \text{ ug/m}^3$  (on both 12/17/2208 and 02/17/2010) to  $4.68~\text{ug/m}^3$  (on 01/08/2008); each of these concentrations was below the VAP residential indoor air standard of 42 ug/m³. Similarly, TCE was reported as non-detected at all five sampling events subsequent to the installation of the SSDS. In the baseline sampling events conducted on 05/04/2007 and 07/19/200, chloroform was detected in indoor air at concentrations of 0.88  $ug/m^3$  (the average of duplicate sample concentrations 0.88  $ug/m^3$  and 0.88  $ug/m^3$ ) and 2.44  $ug/m^3$ , respectively below and above the VAP residential indoor air standard of 1.1  $ug/m^3$ . After installation of the SSDS, the indoor air concentrations of chloroform varied from non-detected at <0.58  $ug/m^3$  to 2.15  $ug/m^3$ , above the VAP residential indoor air standard of 1.1  $ug/m^3$ , but within the range of median indoor air concentrations of 1  $ug/m^3$  to 20  $ug/m^3$  as cited by
- 3.2 Chloroform has been identified at concentrations above the VAP indoor air standard in residences with operating SSDS, at which the paired sub-slab soil vapor concentrations of chloroform are reported below the VAP sub-slab screening level.

At three residential structures within the residential area of vapor intrusion concern located to the east of the Property, monitoring sampling conducted after the installation of the SSDS indicated that chloroform concentrations reported from the sub-slab vapor were consistently below the sub-slab screening concentration of  $37 \text{ ug/m}^3$ ) based on the VAP residential indoor air standard of  $1.1 \text{ ug/m}^3$  and a the default attenuation factor 0.03), and that chloroform concentrations detected in indoor air were consistently above the VAP residential indoor air standard. Furthermore, some of the indoor air chloroform concentrations were higher than that observed in the paired sub-slab soil gas sample. This indicates that, based on multiple sampling events, chloroform concentrations exceed levels predicted by sub-slab vapor concentrations, and are indicative of a separate source. The three residential structures included:

- 59 South Ardmore Avenue, as detailed in Table A-2;
- 2. **75 South Ardmore Avenue**, as detailed in Table A-5; and

<sup>29</sup> Ibid.

<sup>30</sup> ATSDR, 1997. Ibid.

- 81, 83, 85 South Ardmore Avenue, as detailed in Table A-7.
- 3.3 A statistical evaluation of indoor air chloroform concentrations within the residential area of concern measured was the basis of an indoor air background concentration of chloroform not related to subsurface sources, and provides several estimates of a Property-specific background concentration substantially above the VAP residential indoor air standard of 1.1 ug/m³.

The indoor air monitoring results from sampling events conducted after the installation of the SSDS at the seven of the eight residential structures described in Section 3.1 above were further evaluated using U.S. EPA's ProUCL (Version 5.1)<sup>31</sup>. All of the post-treatment/annual mitigation monitoring indoor air results from the seven residential locations were utilized in the data evaluation. Baseline indoor air sample results collected prior to activation of the treatment system represent conditions under which potential vapor intrusion was not controlled, and therefore were not included in the data set. A summary of the chloroform indoor air analytical results utilized, including the sample location, sample ID, and sample date is provided in Table A-9. Chloroform was detected in 26 of the 55 indoor air samples utilized in this data evaluation. Concentrations of chloroform reported in the indoor air samples ranged from 0.73 ug/m³ to 13.67 ug/m³.

ProUCL was utilized to perform background statistics and determine background threshold values (BTVs) for the dataset; 95% upper tolerance limit (95% UTL) values are a statistically appropriate representation of the background concentration and are frequently used as the BTV<sup>32</sup>. As shown in Attachment 1, the dataset fails both the Shapiro-Wilk and Lilliefors goodness-of-fit tests and therefore does not exhibit a normal distribution (Attachment 1, Row 32). Therefore, a statistical evaluation of the data in accordance with procedures for normally-distributed data sets as described in OAC 3745-300-07(H)(1)(d)(2)(c) for background conditions in soils is not appropriate.

The high variability associated with this dataset, and the lack of a normal distribution of the dataset, may be attributed to the nature of the background chloroform sources and the nature of air sampling. Unlike the concentrations of metals and metalloids in soil samples, which are fixed in location and stable throughout time, chloroform concentrations in indoor air are inherently variable. The likely sources of background concentrations in indoor air are dependent upon activities such as the use of chlorinated cleaning compounds, and the frequency and duration of showering, dishwashing and laundry activities. Furthermore, chloroform is a volatile organic compound (VOC), and is subject to degradation over time in the fluid indoor air medium. Therefore, the use of statistical methods designed for soils, in particular those defining normally-distributed datasets, are inappropriate for VOCs in indoor air.

The dataset exhibits an approximately lognormal distribution at the 5% significance level (see Attachment 1, Row 102). Based on this distribution, the background lognormal Regression on Order statistics (ROS) using the imputed non-detects based upon lognormal ROS (also known as robust ROS) methods was utilized as a BTV. A BTV represents a "not-to-exceed" upper threshold concentration value. As defined in the ProUCL User's Guide, the BTV represents an Upper Tolerance Limit (UTL), which is a confidence limit on a percentile of the population rather than a confidence limit on the population mean (i.e., the Upper Confidence Limit [UCL]). As shown in Attachment 1 (see Row 107, column L), the 95% bias-corrected accelerated bootstrap method (BCA) UTL value is 10.74 ug/m³; the 95% bootstrap UTL percentile method without the bias correction see Row 108, column F) is 11.62 ug/m³. U.S. EPA guidance states that "for skewed (lognormal and gamma) data sets, the BCA bootstrap method performs slightly better (in terms of coverage probability)

9

U.S. EPA. 2015. ProUCL Version 5.1 User Guide: Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations. EPA/600/R-07/041. Office of Research and Development. 266 pp.

<sup>32</sup> Ibid., Section 1.4, p. 48.

than the percentile method." The 95% BCA UTL value was derived using 2000 BCA bootstrap operations in ProUCL, and is appropriate for skewed, lognormally distributed datasets; therefore  $10.74~\text{ug/m}^3$  is the selected value for the BTV by the bootstrap method.

The dataset may also be evaluated using nonparametric methods; the 95% UTL with 95% coverage based on nonparametric upper limits for BTVs was estimated as  $10.74~\text{ug/m}^3$  (Attachment 1, Row 129). This evaluation shows that the two predicted 95% UTL values of  $10.74~\text{ug/m}^3$  are equivalent, indicating a remarkable stability irrespective of methodology; these values may be represented as  $11~\text{ug/m}^3$  when rounded to two significant figures.

### 4.0 PROPERTY-SPECIFIC INDOOR AIR STANDARD

In summary, the long-term screening level for chloroform in residential indoor air of  $11~\text{ug/m}^3$  (2.2 ppbV), as developed by ATSDR in its 2008 PHC and applied as the Property-specific indoor air standard, is a value that is consistent with the following values based on the literature and the statistical evaluation of empirical data from post-remedial sampling conducted within the residential area of concern located to the east of the Property:

- 1. The typical median indoor air concentrations range from 1  $ug/m^3$  to 20  $ug/m^3$ , as cited by ATSDR<sup>34</sup>. The midpoint of this range is 10.5  $ug/m^3$ .
- Indoor air concentrations of chloroform of 31 ug/m³ reported by Wallace³⁵ for periods of intensive hot water use. If intensive hot water use including bathing, showering, cooking, dishwashing, laundry and cleaning were assumed to occur over an 8-hour interval, the time-weighted daily concentration would be 10.3 ug/m³, assuming no additional sources of chloroform in indoor air chloroform were generated over the remaining 16 hours of the day.
- 3. The  $90^{th}$ -percentile overnight indoor air concentrations reported from surveyed homes in New Jersey and California<sup>36</sup> show a range of 2.4 ug/m³ to 16 ug/m³.
- 4. The 95% BCA UTL concentration of chloroform from the indoor air sampling conducted at seven residential structures where the SSDS was shown to successfully control other VI-COCs was  $10.74~\text{ug/m}^3$ , assuming the dataset is lognormally distributed.
- 5. The 95% UTL concentration of chloroform from the indoor air sampling conducted at seven residences where the SSDS was shown to successfully control other VI-COCs was 10.74 ug/m³, based on a nonparametric evaluation assuming the dataset exhibits no discernable distribution.

Importantly, this literature-based assessment of background concentrations of chloroform is supported by empirical data obtained from baseline sampling and post-remedial monitoring conducted at residences within the residential vapor intrusion area of concern to the east of the Property. Indoor air concentrations of chloroform above the VAP residential indoor air standard of 1.1  $ug/m^3$  (ranging from 1.12  $ug/m^3$  to 13.67  $ug/m^3$ ) have been reported from multiple houses in the area of concern where the SSDS has been

<sup>&</sup>lt;sup>33</sup> *Ibid.*, Section 2.4.9.3, p. 80.

<sup>34</sup> Ibid.

<sup>35</sup> Wallace, 1989. Op. cit.

<sup>36</sup> Wallace, 1987. Op. cit.

shown to effectively mitigate other VI-COCs (e.g., PCE and TCE). In addition, at four residences where SSDS has been installed and PCE and or TCE are effectively mitigated, post-remedial concentrations of chloroform in indoor air consistently exceed levels predicted by the reported sub-slab vapor concentrations (assuming a default attenuation factor of 0.03).

The proposed Property-specific residential indoor air standard for chloroform of 11 ug/m³ (i.e., the long-term indoor air screening value for chloroform derived by ATSDR for the off-Property residences in 2008) is equivalent to the 95% UTL of background chloroform concentrations at seven structures in the residential area of concern where the SSDS was shown to successfully control other VI-COCs Indoor air concentrations at an off-Property residence at concentrations less than or equal to 11 ug/m³ would be consistent with indoor air levels expected in residences, based on sources such as chlorinated water supply and the use of chlorinated cleaners and wipes. Therefore, the Property-specific standard for chloroform for residential indoor air is consistent with the definition of "background levels" as defined in OAC 3745-300-01(A)(13) effective August 1, 2014, i.e., "...the conditions at a property and areas surrounding a property that are unaffected by any current or past activities involving treatment, storage or disposal of hazardous substances or petroleum. Background levels include naturally occurring substances."

**TABLES** 

# DERIVATION OF BACKGROLND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS DAYTON AYIATION HERITAGE REDEVELOPMENT PROJECT 2701 HOME AVENUE, DAYTON, OHIO 45417

TABLE A-1

SUB-SLAB AND INDOOR AIR SAMPLING RESULTS FOR 55 SOUTH ARDMORE AVENUE

Sampling Results for 55 South Ardmore Avenue U.S. EPA ID: 35

Indoor Air Results

Chloroform 110

Sample ID

Sub-Slab Results

1,1,1-TCA 5,200

> PCE 42

> > 2.1 TCE

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Tiline SUB-SIAB R SUB-	TOE	1,1,1,-1CA
48	Chlorotorm	
	37 70 1,400	170,000
	an crap becruite (ile /m3)	
	UB-SLAB RESOCIO IPB/ 13.57	4Z
	59 (1,43)	
	rly Monitoring (Quarter 2) Sub-Sign Results (Hg/ III)	¥Z
	arty Monitorina (Quarter 3) Sub-Slap Results (µg/m²)	
	13.44	AN
	2.1	
$HH\Pi\Pi\Pi\Pi\Pi$	erly Monitoring (Social Property 2009)	NA
	0.73 (4.3)	
H&A         5/19/2009         P2-SS-35-M4-01         1.03           H&A         6/17/2009         P2-SS-35-M4-01         1.03           H&A         6/17/2009         Annual Militagriam Manitaring - YEAR 2 2010 Sub-Slab           H&A         2/17/2010         P2-SS-35-M5-01           H&A         3/18/2011         P2-SS-35-M6-01           H&A         3/18/2011         P2-SS-35-M6-01           H&A         2/29/2012         ND (0.63)           H&A         2/29/2012         Sincenthiam Maligation Performance Plantile Manitariam Manita	erly Monitoring (Quarter 3) sub-sit of monitoring (A)	AN
	2.39	42
7	1,03	
ПППП	VEAR 2 2010 Sub-Slab Results (µg/m³)	
	30 ND (0.66)	(99) NA
	NO (0.00)	
	19 - 15AR 3 2011 305 515 51	NA
	ND (0.63)	34 (11 - /m3)
	e Mitigation Performance Monitoring - 2012 Sub-Slab Ke	mis (pg/m²)
2/29/2012	Streamline Monitoring-Inspection Only	
-	- Blan Parformed by Hull: Sub-Slob Results (µg/m³)	
	Palamos and	

₹ Z ¥

				-	970	1.1.1.TCA	- Continue		
Sampler	Sample Date	Sample ID	Chloroform	TCE	2		Long-Term A	Long-Term Action Level - VAP Residential Indoor Air	idential Indoor Air
N. T. L. V.	C. L. JL Vance Screening Levels - Default	Default Attenuation	2.2	70	1,400	170,000		Standard	000
Sub-Sign va	por Series and lod		26		The state of the s				BASELINE INDOOK
	Factor = 0.03		PACELLE CHE CLAR DECLITS (UG/m3)	/m <sub>3</sub> )			A SH	3/4/2008	P2-IA-35-81-01
		BASELIN	E SON SECONDE	1.93	13.57	₹Z		Post Treatment	Post Treatment (30 Days), OR Quarterly
H&A	3/4/2008	P2-55-35-81-01	SS-35-81-01 St. Manifesting (Quarter 2) Sub-Slav Results (µg/m³)	er 2) Sub-Slau Results	µg/m³)		4 80 1	6/24/2008	P2-IA-35-M1-01
	Post Tre	Post Treatment (30 Days), OK Gud	C 27	64.40	4.75	₹Z		Post Treatment	Post Treatment (60 Days), OR Quarterly
H&A	6/24/2008	P2-55-35-M1-01	SS-35-M1-01 SS-35-M1-01 SS-35-M1-01 SS-35-M1-01	ter 3) Sub-Slap Results	(hg/m³)		4%1	7/30/2008	P2-IA-35-M2-01
	Post Tr	Post Treatment (ou Days), On war		13.44	0.88	AX		Post Treatment	Post Treatment (180 Days), OR Quarterly
H&A	7/30/2008	P2-SS-35-M2-01	-SS-35-M2-01	ther 41 Sub-Skib Results	(Ma/m³)			11/17/2008	P2-IA-35-M3-01
	Post Treatment	satment (180 Days), OR Or	parterly monitoring land	14.5	0.95	₹Z	200	Post Treatment	Post Treatment (360 Days) OR Quarterly
H&A	11/17/2008	P2	-55-35-M3-01 0.73 0.73 Sub-5li b Results (Lg/m³)	ther 51 Sub-Sir b Results	(µa/m³)		***************************************	5/19/2009	P2-IA-35-M4-01
	Post Tre	Post Treatment (360 Days) OK Qu	Darterly Monitoring (work	9.6	0.81	NA	0 40	6/17/2009	P2-IA-35-M4-02
H&A	5/19/2009	P2-SS-35-M4-01	7.37	12.0	0.81	AN	6	Annu	Annual Mitigation Monitoring-
H&A	6/17/2009	P2-55-35-M4-02	P2-55-35-M4-02 CEAP 2 2010 Sub-Slab Results (Lg/m³)	Slab Results (µg/m³)			of N	2/17/2010	P2-IA-35-M5-01
		Annual Mitigation Mont	Dering - ILAN 2 401	3.9	ND (0.66)	A Z		Annu	Annual Mitigation Monitoring -
H&A	2/17/2010	P2-S5-35-M5-01	P2-S5-35-M3-01 Marketing YFAR 3 2011 Sub-Slab Results (µg/m³)	b-Slab Results (µg/m³)			H&A	3/18/2011	P2-IA-35-M6-01
		Annual Mingarion mon	ND (0.63)	6.43	2.37	V.	Annual	Annual Mitigation Manitoring - YEAR 4 or Pre-emplive M	YEAR 4 or Pre-emplive A
H&A	3/18/2011	P2-55-35-Mo-UI	-55-35-mo-Ul	ance Monitoring - 2012	Sub-Stab Results (H	3/m³)	HSA	2/29/2012	
	Annual Mitigation Monitoring -	itoring - YEAR 4 or Fre-em	Streamline	Streamline Monitoring-Inspection Only	Only			Annual Opera	Annual Operations and Maintenance Pla
H&A	2/29/2012	Maintenance Plan-Performed by Hull; Sub-Slab Results (µg/m³)	once Plan-Performed by	Hull; Sub-Slab Results	(hg/m³)		Hotel		
	Anno	oal Operations and mainte	Not Sampled	led					
Hull									

	1, 2014).
1 1.5 - 14 advances forther of 0.03 for all residences (US EPA VI guidance, 2012	Based on recommended detabli direction of the Standards OAC 3745-300-08, Appendix A, Table IV (effective August

<sup>&</sup>lt;sup>3</sup> Property-specific residential indoor air background standard for chloroform (O&M Plan, Appendix A)

## DERIVATION OF BACKGROUND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS DAYTON AVIATION HERITAGE REDEVELOPMENT PROJECT 2701 HOME AVENUE, DAYTON, OHIO 45417

TABLE A-2

### SUB-SLAB AND INDOOR AIR SAMPLING RESULTS FOR 59 SOUTH ARDMORE A VENUE

**Sub-Slab Results** 

Sampling Results for 59 South Ardmore Avenue U.S. EPA ID: 37

Indoor Air Results

1,400   1,40	ub-slab Vo	Ipor Screening Level	Sub-slab Vapor Screening Levels - Default Attenuation Easts -	Chloroform	TCE	PCE	111.TCA
3/6/2008		0.0	)31	37	70	1.400	170 000
Post Treatment (190 Days), OR Quotnerly Mentioning (Quorner 3) Sub-Stable Results (Lig/m²)   Post Treatment (190 Days), OR Quotnerly Mentioning (Quorner 3) Sub-Stable Results (Lig/m²)   Post Treatment (190 Days), OR Quornerly Mentioning (Quorner 3) Sub-Stable Results (Lig/m²)   ND (1.36)		3/4/2008	BASELINES	UB-SLAB RESULTS (µg/m³)			000'0.
6/24/2008   Post Treatment (30 Days), DK Guornerly Monitoring (Quarter 2) Sub-Side Results (19g/m²)     7/39/2008   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 2) Sub-Side Results (19g/m²)     7/39/2008   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 3) Sub-Side Results (19g/m²)     1/17/2008   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 4) Sub-Side Results (19g/m²)     8/3.07.40.01   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 5) Sub-Side Results (19g/m²)     1/2009   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 5) Sub-Side Results (19g/m²)     2/17/2010   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 5) Sub-Side Results (19g/m²)     2/17/2010   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 5) Sub-Side Results (19g/m²)     2/17/2010   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 5) Sub-Side Results (19g/m²)     2/17/2010   Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 5) Sub-Side Results (19g/m²)     3/1/2012   Amusol (Antigotion Monitoring - YEAR 2 2011 Sub-Side Results (19g/m²)     3/1/2012   Amusol (Antigotion Monitoring - YEAR 2 (19g/m²)     1.29   Amusol (Antigotion Monitoring - YEAR 2 (19g/m²)     3/1/2012   Amusol (Antigotion Monitoring - YEAR 2 (19g/m²)     8/5/2014   HMR004 (Sparkinoscex Ander 1)     1.20   Amusol (Antigotion Monitoring - YEAR 2 (19g/m²)     1.20   Amusol (Antigotion Monitoring - Y			Post Treatment (20 P	10,743	53,742		* 7
7/30/2008   P2-55-37-M2-OI   P2-55-37-		1	So Days), OR Quarte	rly Monitoring (Quarter 2)	Sub-Slab Results (µg/	m <sup>3</sup> )	
7/30/2008   Total Control Co			Post Treatment (A) Demai On O	error resulted in samples	not being analyzed fo	ir the 30-day event	
11/17/2008   Pass Treatment (180 Days), OR Quarterly Monthering (Glounter 4) Sub-Stola Results (Lig/m²)   ND (1.36)			P2-SS-37-M2-01	rly Monitoring (Quarter 3)	Sub-Slab Results (µg/	m <sup>3</sup> )	
11/17/2008   P2-55-37-A3-C    P3-55-37-A3-C    P3-55-37			Post Treatment (180 Pared On C.	4.2	53.74		MA
S/19/2009   P2-85-37-M4-01   P2-85-37-M4-01   P2-85-37-M4-01   P2-85-37-M4-01   P2-85-37-M4-01   P2-85-37-M4-01   P2-85-37-M4-01   P2-85-37-M4-01   P2-85-37-M4-01   P2-85-37-M5-01   P2-85-37-			P2-SS-37-M3-01	rly Monitoring (Quarter 4)	Sub-Slab Results (µg/		W.
5/19/2009   P2.55.37.84.01   P.25.53.784.02   P.25.53.784.02   P.25.53.784.02   P.25.53.784.02   P.25.53.784.02   P.25.53.784.02   P.25.53.784.02   P.25.53.784.02   P.25.53.786.02   P.25.53.7			Post Treatment (340 Days) OB C.	8/10	8.6		NA
2/17/2010   Annual Miligaries Monitoring - YEAR 2.2010 Sub-Stob Results (Lig/m²)   0.75     Annual Miligaries Monitoring - YEAR 2.2011 Sub-Stob Results (Lig/m²)   1-4   ND (0.68)     Annual Miligaries Monitoring - YEAR 4 or Pre-emptive Miligaries Performance Monitoring - 2012 Sub-Stob Results (Lig/m²)   ND (0.68)     3/1/2012   P.2.5S37-M7-01   ND (0.73)   ND (0.73)   ND (0.75)     8/5/2014   HMRO04 - Sob Annual Control of Sub-Stob Results (Lig/m²)   ND (0.75)   HMRO04 - Sob Annual Control of Sub-Stob Results (Lig/m²)   ND (0.75)   ND (0.75)     8/5/2014   HMRO04 - Sob Annual Control of Sub-Stob Results (Lig/m²)   ND (0.75)   ND (		1	P2-55-37-M4-01	rly Monitoring (Quarter 5)	Sub-Slab Results (µg/		
2/17/2010   P-255-37-M5-01   P-255-37-M7-01   P-255-37-			Approx Missonian and	1.12	3.71	0.75	VN.
6/9/2011   Armuol Miligation Monitoring - YEAR 3 2011 Sub-Stob Results (128/m²)   P2-553-27-M6-01   ND (0.69)   ND (0.69)     Armuol Miligation Monitoring - YEAR 4 or Pre-emptive Miligation Performance Monitoring 2012 Sub-Stob Results (128/m²)   3/1/2012   Armuol Operations and Monitorence Plane Performed by Hully Sub-Stob Results (128/m²)   ND (0.73)   Opt 1   ND (0.73)   Opt 1   ND (0.73)   Opt 1   ND (0.73)   ND (0.73)   ND (0.73)   ND (0.74)   ND (0.75)   ND (0.75		2/17/2010	P2-SS-37-M5-01	- YEAR 2 2010 Sub-Slab	Results (µg/m³)		W
6/9/2011   P-2-SS-37-M6-O    Annual Miligation Monitaring - YEAR 4 or Pre-amptive Miligation Performance Monitaring - 212 Sub-State   ND (0.68)   ND (0.68)			Annual Mitigation Monitoring	VEAR 2 2011 0	4.1	ND (0.68)	AN
Annual Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 5ub-Slob Results (Iug/m²)   1.29   1.2012   1.202   1.203-37-M7-01   1.2012   1.203-37-M7-01   1.		6/9/2011	P2-55-37-MA-01	- ICAR 3 2011 Sub-Slab	Results (µg/m³)		
3/1/2012   P.2.53.37.A/7.01   P.		Annual Mitigation	Monitoring - YEAR 4 or Per	ND (0.68)	1.29	ND (0.68)	NA.
Amuol Operations and Maintenance Plan-Performed by Hull; Sub-Slab Results (Lg/m²) HMED04: 50 Arrhmone Ce. Anance 2		3/1/2012	P2-SS-37-M7-01	Mingahon Performance Mo	nitoring - 2012 Sub-Si	lab Results (µg/m³)	
HME004: SQArdmoreSC. ADDOS: 14			Annual Operations and Maintain	ND (0.73)	0.91	ND (0.75)	47
			HME004: 59ArdmoreSS. ADBOST 4	lan-Performed by Hull; Su	b-Slab Results (µg/m³		

<sup>1</sup> Based on recommended default attenuation factor of 0.03 for all residences (US EPA VI guidance, 2015).

<sup>2</sup> Ohio EPA Residential Indoor Air Standards, OAC 3745-300-08, Appendix A, Table IV (effective August 1, 2014).

<sup>3</sup> Property specific residential indoor air background standard for chloroform (O&M Plan, Appendix A).

		CII HIGHING	,			
			Chloroform	TCE	PCE	-
ong-Term Ac	tion Level - VAP Resid	Long-Term Action Level – VAP Residential Indoor Air Standard <sup>2</sup>	113	2.1	42	1,1,1-1CA
		BASELINE INDOOR ALD CA	The Party of the P	1	74	2,200
H&A	3/4/2000	STATE RESULTS (JIG/m3)	WPLE RESULTS (µg/r	n3)		
	2/0/2008	P2-IA-37-81-01	3.27	23 67		
	Post Treatme	nt (30 Days). OR Oligitarly Manile	0	14.37	ND (0.75)	NAN
H&A	6/24/2008	1/2008 (Lg/m³)	ing (Sugrier 2) Ind	oor Air Results (µg	/m³)	
	Post Treatme	Admistrative error	Admistrative error resulted in samples not being analyzed for the 30-day event	tot being analyzed	for the 30-day a	went
H&A	7/30/2008	0/2008 po in 27 in a wantering (Quarter 3) Indoor Air Results (µg/m³)	ring (Quarter 3) Ind	oor Air Results (µg,	/m <sup>3</sup> )	
	Post Trantmen	100 P - 12-14-3/ -MZ-01	1.12	0.75	ND (0.68)	AIA
H&A	21/11/2000	(150 Cays), Ok Quarterly Monitoring (Quarter 4) Indoor Air Recults (112 / 22)	ring (Quarter 4) Inc	Oor Air Paculte Itte	/m31	
-	8002/11/11	P2-IA-37-M3-01	NO 10 701	Bell concerning	1.111	
	Post Treatmen	t (360 Days Op Quarterly at	(0.70)	ND (0.81)	ND (0.81)	AN
H&A	5/19/2009	9/2000 and Results (Dayma)	ring (Quarter 5) Ind	oor Air Results (µg,	/m <sup>3</sup> )	
		14-14-37-M4-01	2.3	ND (0.81)	118 01 CN	****
HRA	1	Airligation Monitoring-YEAR 2 2010 Indoor Air Results (Ltd./m3)	2010 Indoor Air Res	ults (Ucs/m3)	1000	
-	2/1/2010	P2-IA-37-M5-01	313	10000		
	Ann	Annual Minigation Manitoring - YEAD 3 2011 1-1	2011100	18.01 UN	ND (0.81)	NA
H&A	6/9/2011	PO 14 37 44 01	ZOLI INGOOF AIR KE	solts (µg/m³)		
Annua	Il Mitigation Monitorina -	YFAP 4 or Pro	ND (0.63)	ND (0.65)	1,15	42
H&A	3/1/2012	3/1/2012 and re-empire Miligation Performance Monitoring - 2012 Indoor Air Results (Lin /m3)	Performance Monito	ring - 2012 Indoor	Air Results (Un/n	1
	Annual Opera	12-14-3/-M/-01	ND (0.83)	ND (0.81)	ND (081)	414
Hull	1000	and Maintenance Plan-Performed by Hull; Indoor Air Sampling (112/2-11	ned by Hull; Indoor	Air Sampling (110/	11	
100	8/3/2014	HME004: 59 Ardmore: A080514	314	And Building	1.11	

Y X Y.

ring-Inspection Only

Streamlined Monit

3/1/2012

HEA

19; 63A South Ardmore Avenue 20, 638 South Ardmore Avenue

Annual Operations and Maintenance Plan-Performed by Hull; Indoor Air Sompling  $(\mu g/m^2)$ 

Not Sampled

HOH

19: 63A South Ardmore Avenue

18: 61 South Ardmore Avenue

20, 638 South Ardmore Avenue

otive Mitigation Performance Monitoring - 2012 Indoor Air Results (Ug/m<sup>1</sup>

Mitigation Monitoring - YEAR 4 or Pre-emp

ND (0.75)

ND (0.78)

ND (0.78)

P1-(A-19-M6-01 P1-IA-20-M6-01

3/18/2011

H&A

19: 63A South Ardmore Avenue

20: 638 South Ardmore Avenue 18; 61 South Ardmore Avenue

PT-14-18-W6-01 P1-IA-20-M5-01

1,71

× Y

ND (0.75) ND (0.75) ND (0.75)

ND (0.75)

X X ž ž

ND (0.86) ND (0.86)

ND (0.88)

Amual Mitigation Monitoring YEAR 2 2010 Indoor Air Results (J/g/m<sup>2</sup>)

P1-IA-18-M5-01

P1-IA-19-M5-01

2/17/2010

H&A

19: 63A South Ardmore Avenue

18: 61 South Ardmore Avenue

20: 638 South Ardmore Avenue 18: 61 South Ardmore Avenue

ND (0.88)

ND (0.81)

ND (0.83)

unyai Miligation Monttoring - YEAR 3 2011 Indoor Air Results (µg/m³)

4 Z ž

ND (0.81) ND (0.88) ND (0.88) ND (0.88) ND (0.81)

ND (0.81)

Post Treatment (360 Days) OR Quarterly Monitoring (Quarter 5) Indoor Air Results [µg/m²]

P1-fA-20-M3-01

6/24/2008

HEA

20, 638 South Ardmore Avenue

P1-IA-18-M4-01 P1-IA-20-M4-01

P1-14-19-M4-01

12/17/2008

H&A

19: 63A South Ardmare Avenue

18: 61 South Ardmore Avenue

20: 638 South Ardmore Avenue

ND (0.86)

13:97

¥Z ďZ. × Z

ND (0.75)

ND (0.75)

ND (0.83) ND (0.78) ND (0.88)

ND (0.75) ND (0.88)

ND (0.60) ND (0.75)

ND (0.59)

ND (0.59)

Indoor Air Results (µg/m³)

Post Treatment (60 Days), OR Quarterly Monitoring (Quarter 3)

0.75

ND (0.64)

ND (0.75) ND (0.75) ND (0.86)

ND (0.73) 2.54

> P1-IA-20-M2-01 P1-14-18-M3-01 P1-IA-19-M3-01

2/14/2008

HEA

19: 63A South Ardmore Avenue 20: 638 South Ardmore Avenue 18: 61 South Ardmore Avenue 19, 63A South Ardmore Avenue

ndoor Air Results (µg/m³)

Post Treatment (180 Days), OR Guarterly Monitoring (Quarter 4)

1.37

ND (1.29)

ND (1.24)

ND (1,51)

ND (0.73) ND (1.27)

P1-1A-18-M1-01 P1-IA-20-M1-01 P1-IA-18-M2001 P1-IA-19-M2-01

## DERIVATION OF SACKGROUND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS DAYTON AVAILON HERITAGE REDEVELOPMENT PROJECT 2701 HOME AVENUE, DAYTON, OHIO 45417

TABLE A-3

SUB-SLAB AND INDOOR AIR SAMPLING RESULTS FOR 61, 638, 638 SOUTH ARDMORE AVENUE

Sampling Results for 61, 63A, 638 South Ardmore Avenue U.S. EPA ID: 18, 19, 20

Indoor Air Results

1,1,1-TCA

PCE

TCE 2.1

Chloroform

Sample ID

Long-Term Action Level – VAP Residential Indoor Air Standard<sup>2</sup>

Sampler Sample Date

U.S. EPA ID: Address

Sub-Stab Results

113

5,200

42

Q Z Z

2.10

| A/21/2007 | 63A-Ardmare-InA-1 | 5/19/2007 | 63A-Ardmare-InA-1 | 5/19/2007 | 63A-Ardmare-InA-1 | 5/19/2007 | 63A-Ardmare-InA-2 | 63A-Ardmare-InA-

Ž. A N ¥Z

1.83

ND (0.75) ND (1.5)

arterly Monitoring (Quarter 2) Indoor Air Results (µg

Post Treatment (30 Days), OR Qu

H&A

19: 63A South Ardmore Avenue

18: 61 South Ardmore Avenue

20, 638 South Ardmare Avenue

1/8/2008

HEA

20: 638 South Ardmore Avenue 18: 61 South Ardmore Avenue

19: 63A South Ardmore Avenue

18: 61 South Ardmore Avenue

II C CDA ID. Address	Sampler	Sample Date	or aldinoc				170 000
Sorb-day Vapor	Screening Levels	Control Venes Screening Levels - Default Attenuation Factor = 0.03	, Factor = 0.03	37	70	1,400	200000
2000		-	PACCEINE SUR.SIAB RESULTS (MG/	S (µa/m³)	-	200	CZ
			BASCHINE SOCIAL	17.58	17.20	777	100
the state of the s		4/21/2007	ol-Ardmore:33-1	1514	28.48	3.8	MA
8: 61 South Ardmore Avenue		2/10/2007	63A-Ardmore-SS-1	15.63	28.48	3,73	NA.
19; 63A South Ardmore Avenue	Take	10.16	63A-Ardmore-53-2				
30. 438 South Ardmore Avenue			1 Op Committee Monitoring (Quarter 2) Sub-Slab Resu s (Jug/m³)	Quarter 2) Sub-Slab Resu	(m/6rl) s		
		Post Treatment (301	Joys), Ok Goornery market	15.63	107.48	0.88	¥Z.
Section Assessment Assessment			P1-SS-18-M1-01a	2000	2000	1.40	NA.
8: 61 South Ardmore Avenue	10 200	8000/0/.	P1-SS-19-M1-01	2.39	0.75		
9: 63A South Ardmore Avenue	HEA	1/0/2000	A10 14 00 30 10	1.86	ND (1.18)	ND (1.22)	¥Z
20. 638 South Ardmore Avenue			21-22-50-W-07-65-14	The Party Barre	the file (m2)		
		Post Treatment (60	Post Treatment (60 Days), OR Quarterly Monitoring (Quarter 3) Sub-Sido Ress is (59)	Quarter 3) Sub-Sido Resi	m /Red) e	to an an	NA.
			P1-SS-18-M2-01	ND (0.63)	ND (0.59)	NO (0.02)	2
8: 61 South Ardmore Avenue			10-K-10-M-2-01	1.9	ND (0.64)	ND (0.02)	
19: 63A South Ardmore Avenue	H&A	2/14/2008	10 27 00 30	1,12	1.5	ND (0.68)	¥Z.
20, 638 South Ardmore Avenue			D-38-07-88-14	The Party Bank	de (Hr/m³)		
		Post Treolment (180	Post Treatment (180 Days), OR Quarterly Monitoring (Quarter 4) and	Course of the same		1.00	Y.
			P1-SS-18-M3-01	6.35	28.48	107	-
18: 61 South Ardmore Avenue			p1.55.19.M3-D1	4.39	1.13	ND (0.75)	4
19: 63A South Ardmore Avenue	HAA	6/24/2008	61 55 70 43.01	1.9	16'0	ND (0.75)	¥7
20, 638 South Ardmore Avenue			1.30-komo-	Courter St Sub-Slob Re	olls (Ug/m³)		
		Post Treatment (36	Post Treatment (360 Days) OR Quarterly Monitoring (Justines 2) 300	Conties of conties	00.7	ND (0.66)	ž
The state of the s			p1-55-18-W4-01	0.93	4.07	10 10 101	¥Z.
8: 61 South Ardmore Avenue		13/17/2008	P1-SS-19-M4-01	10.25	ND (0.70)	ND (0.08)	
19: 63A South Ardmore Avenue	H&A	1000	P1-SS-20-M4-01	4.88	ND (0.70)	ND (0.68)	Z.
20, 638 South Ardmore Avenue				10 C. Clark Dassille (110)	121		1
		Annual A	Amual Mitigation Monitoring - TEAK & AUTO 3023 3023	200000000000000000000000000000000000000	213	ND (0.66)	A'N
			P1-SS-18-W5-01	0.73	21.0	187 01 411	d'X
18: 61 South Ardmore Avenue	1	0106/21/6	P1-SS-19-M5-01	2.05	ND (0.70)	ND (0.00)	
9: 63A South Ardmore Avenue	H&A	2/11/2012	10-58-20-M5-01	ND (0.73)	ND (0.75)	ND (0.75)	¥Z.
20: 638 South Ardmore Avenue	•		VFAR 3 2011 Sub-Slob Results (Jug. m <sup>3</sup> )	011 Sub-Slob Results (µg,	( <sub>cu</sub>		
		Annual	Wilgarian montrial	1.04	5.91	ND (0.75)	NA.
8; 61 South Ardmore Avenue	_		P1-SS-18-Wo-01	162.07	ND (0.75)	ND (0.75)	4Z
	HAA	3/18/2011	P1-SS-19-M6-01	NO (0.73)		132.01.01-	Y.
19: 63A South Ardindre Avenue			P1-55-20-M6-01	ND (0.73)	ND (0.75)	ш	
20: 63B South Ardmore Avenue				T. Monitorion .	312 Sub-Slob Results (Ju	3/m <sup>3</sup> )	
		litigation Monitoring - YE	Annual Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance monitoring	Automore manager			₹ Z
19. 41 South Ardmore Avenue				The second second	of the Contract of the Contrac		4Z
	-	3/1/2012		Streamlined Monitoring Inspection City	inspection Only		414
19: 63A South Ardmore Avenue	H&A	100					42
20. 63B South Ardmore Avenue	ne		("m/gr) shows Stob Stob Stob (Lig/m)	and he Hell Sub-Slob Res	(m/g/m)		
		Annual Operat	ions and Maintenance Plan-Perio	tion of the contract of the co			
18: 61 South Ardmore Avenue				Not Sampled	70		
19: 63A South Ardmore Avenue	Hull						

Con C. d. A. Janes August	400	- / - / -			The same of the last of the la		
9: 03A South Artendric Artenda			P1-SS-20-M6-01	ND (0.73)	ND (0.75)	(crolos	
O. A.78 South Ardmore Avenue					n/ DI Hungh Paults (110/n	m <sup>3</sup> )	
		O STATE	4 or Pre-emptive Mitigation Perfor	rmarce Monitoring - U	/ Sell success apic and 7 I		1
	Annual Mitt	gation Monitoring 1 LAN	Armuel Mittegrien Mentitoring 12AR 4 of 10 cm.				¥Z
8: 61 South Ardmore Avenue				the Contraction to	vino Only		AN.
	4.67	3/1/2012	ñ	Streamined Monitoring hisparing	The state of the s		414
9: 63A South Ardmore Avenue	Lan						NA
20: 638 South Ardmore Avenue			(" Pyl) store Stab Stab Stab Results (Jug/m)	4 hv Hull: Sub-Slab Rist	dis (µg/m³)		
		Annual Operation	s and Maintenance Floring engine				
18: 61 South Ardmore Avenue				Not Sampled	4		
19, 63A South Ardmore Avenue	F						
20: 638 South Ardmore Avenue							

Spaced or resonmended defoult attendation factor of 0,03 for all residences (1.0 ΕΡΑ VI guida ce., 2015).

<sup>1</sup> Obje EPA Residential Indoor Air Standards, OAC 3245-300-08, Appendix A. Toble IV (effect in August 1, 2014).

<sup>1</sup> Property specific residential Indoor air backgrowd standard for dilocoform (O&M Plan, Appendix A).

## DERIVATION OF BACKGROUND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS DAYTON AVIATION HERITAGE REDEVELOPMENT PROJECT 2701 HOME AVENUE, DAYTON, OHIO 45417

### TABLE A-4

## SUB-SLAB AND INDOOR AIR SAMPLING RESULTS FOR 71 SOUTH ARDMORE AVENUE

Sub-Slab Results

Sampling Results for 71 South Ardmore Avenue U.S. EPA ID: 11 1,1,1-TCA 5,200

PCE 42

TCE 2.1

Sampler Sample Date Sample ID
Long-Term Action Level – VAP Residential Indoor

Indoor Air Results Chloroform 2 YZ Z AN

70 1,400  TS (µg/m²)  1074.85 1.42.4  Ideb Results (µg/m²)  134.36 33.9.2  Ideb Results (µg/m²)  18.27 3.8.7  Ideb Results (µg/m²)  18.27 3.8.7  Ideb Results (µg/m²)  18.27 3.8.7  Ideb Results (µg/m²)  ND (1.34) ND (1.36)  Guarter 5) Sub-Slab Results (µg/m²)  NA per U.S. EPA (µuly 2008)  Sub-Slab Results (µg/m²)  NA per U.S. EPA (µuly 2008)  Sub-Slab Results (µg/m²)  NA per U.S. EPA (µuly 2008)  Sub-Slab Results (µg/m²)  NA per U.S. EPA (µuly 2008)	Sub-cla	Sample Date	Sample ID	Chloroform	TCE	PCE	1111704
H&A   5/2/2007   71-Ardmore-SS-1   1074.85   14.24   37.65   33.65		Aftenuation Factor	Levels - Default r = 0.03	37	70	1,400	170,000
17.74 chance - SS-1   1074.85   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.65   14.24   37.27   37.35   37.2	HSA	1000/0/2	BASELINE	SUB-SLAB RESUL	15 (µg/m³		
17.28   20075 , OR Quarterly Monitoring (Quarter 2) Sub-Slab Results (µg/m³)   27.03	Det Tront	3/2/200/	71-Ardmore-SS-1	1074.27	1074.85	14.24	37.15
17.28/2007   P15511Q1-0.1   78.13   134.36   33.92   NA	100	I loo Days), OK C	Variety Monitoring (	Quarter 2) Sub-Si	ab Results	(110/003)	50.75
18.27   3.67	H&A	11/28/2007	P15S11Q1-01	78.13	134 36	3300	
	st Ireatm	nent (60 Days), OR G	Narterly Monitoring (C	Dicetor 21 C. L C.		33.72	NA
Post Treatment (180 Days), OR Quarterly Monitoring (Quarter 4) Sub-Slab Results (µg/m³)   Post Treatment (180 Days), OR Quarterly Monitoring (Quarter 4) Sub-Slab Results (µg/m³)   Post Treatment (340 Days), OR Quarterly Monitoring (Quarter 5) Sub-Slab Results (µg/m³)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program Completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program Completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program Completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program Completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program Completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program Completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program Completed. NRA per U.S. EPA (July 2008)   Phase I Quarterly Monitoring Program	18A	2/12/2008	P1-11 CC 02 01	10-000 / DOD-21	do Kesults	(µg/m³)	
18.4 5/21/2008   10.0 Cartering Monitoring (Quarter 4) Sub-Slab Results (Lig/m³)   NA   Post Treatment (360 Days) OR Quarterly Monitoring (Quarter 5) Sub-Slab Results (Lig/m³)   NA   Phase I Quarterly Monitoring Program completed. NIA per U.S. FPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. FPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed. NIA per U.S. EPA (Livy 2008)   Phase I Quarterly Monitoring Program completed		Post Treatment	(180 Payer) OB O	8.3	18.27	3.87	AN
Post Treatment (360 Days) (200 Quarterly Monitoring Program completed. NE per U.S. Stab. Stab Results (µg/m³) Phase I Quarterly Monitoring Program completed. NEA per U.S. EPA (July 2008) Annual Mitigation Monitoring Program completed. NEA per U.S. EPA (July 2008) Phase I Quarterly Monitoring Program completed. NEA per U.S. EPA (July 2008) Phase I Quarterly Monitoring Program completed. NEA per U.S. EPA (July 2008) Phase I Quarterly Monitoring Program completed. NEA per U.S. EPA (July 2008) Phase I Quarterly Monitoring Program completed. NEA per U.S. EPA (July 2008)  Nound Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 Sub-Slab Results (µg/m³)  Unoccupied Annual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Results	18.A	5/21/2008	11 12 C C C C	erly Monitoring	Quarter 4	Sub-Slab	(esults (µg/m³)
Phase I Quarterly Monitoring processor (I/A) Sub-Slab Results (µg/m³)  Annual Mitigation Monitoring Program completed. NFA per U.S. EPA (July 2008)  Phase I Quarterly Monitoring Program completed. NFA per U.S. EPA (July 2008)  Phase I Quarterly Monitoring Program completed. NFA per U.S. EPA (July 2008)  Phase I Quarterly Monitoring Program completed. NFA per U.S. EPA (July 2008)  Phase I Quarterly Monitoring Program completed. NFA per U.S. EPA (July 2008)  Phase I Quarterly Monitoring Program completed. NFA per U.S. EPA (July 2008)  Novel Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 Sub-Slab Results (µg/m²)  Unoccupied  Annual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Results		Post Treatment	(360 Days) OP O	ND (1.37) IN	ID (1.34)	VD (1.36)	NA
Annual Mitigation Monitoring - YEAR 2010 Sub-Slab Results (Luly 2008)  Phase I Quarterly Monitoring Program completed. NA per U.S. EPA (Luly 2008)  Annual Mitigation Monitoring - YEAR 3 2011 Sub-Slab Results (Lug/m³)  Phase I Quarterly Monitoring - YEAR 3 2011 Sub-Slab Results (Lug/m³)  Phase I Quarterly Monitoring - YEAR 3 2011 Sub-Slab Results (Lug/m³)  Inval Mitigation Monitoring - YEAR 4 or Pire-emptive Mitigation Performance Monitoring - 2012 Sub-Slab Results (Lug/m³)  Unoccupied  Annual Operations and Maintenance Monitoring - 2012 Sub-Slab Results		Phase I Qu	Jarterly Monitoring Pr	erly Monitoring (	Juarter 5)	Sub-Slab R	esults (µg/m³)
Phase I Quarterly Monitoring Program completed. NEA per U.S. EPA (July 2008)  Annual Mitigation Monitoring - YEAR 3 2011 5ub-Slab Results (µg/m³)  Phase I Quarterly Monitoring Program completed. NEA per U.S. EPA (July 2008)  nual Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 Sub-Slab Results (µg/m²)  Unoccupied  Annual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Results		Annuc	Mitigation Monitorin	g VEAD 2 2010	NFA per	U.S. EPA (Ju	ly 2008)
Annual Mitigation Monitoring - YEAR 3 2011 Sub-Stab Results (Luly 2008)  Phase I Quarterly Monitoring - Program completed. NFA per U.S. EPA (Luly 2008)  nual Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 Sub-Stab Results (Lug/m²)  Unoccupied  Annual Operations and Maintenance Incompleted by Hull; Sub-Stab Results		Phase I Qu	arterly Monitoring Pro	9 - 1 LAK 2 2010	Sub-Slab	Results (µg,	/m³)
Phase I Quarterly Monitoring Program completed. NFA per U.S. EPA (July 2008)  nual Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 Sub-Slab Results (µg/m²)  Unoccupied  Annual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Results		Annuc	Mitigation Monitorin	VEAD 2 2011	NFA per	U.S. EPA (Ju	ly 2008)
nual Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 Sub-Slab Results (µg/m³)  Unoccupied  Annual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Results		Photo I O.	Tomorra Maria	9 - 15AK 3 2011	Sub-Slab	Results (µg/	(m <sup>3</sup> )
inual Muligation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 Sub-Slab Results (µg/m³)  Unoccupied  Annual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Results	1		winerry Monitoring Pro	gram completed.	NFA per	J.S. EPA (Ju	17 2008)
Annual Operations and Maintenance Plan-Berformed by Hull; Sub-Slab Results	MINION WILL	gation Monitoring - 1	EAR 4 or Pre-emptive	Mitigation Perfo	mance Mo	nitoring - 2	012 Sub-Slab Results (µg/m³)
Annual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Results				Unoccupied			
Illering Special Casults		Annual Or	perations and Mainten	ance Plan-Perform	ned by H.	II. C.ib. Clan	
				Harman	וופת הל ווח	ii; sub-sidb	Kesults

Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA July 2008)

Annual Mitigation Monitoring-YEAR 2 2010 Indoor Air Results (Jug/m³)

Phase I Quarterly Monitoring Program completed. NRA per U.S. EPA July 2008)

Annual Mitigation Monitoring - YEAR 3 2011 Indoor Air Results (Jug/m³)

Phase I Quarterly Monitoring Program completed. NFA per U.S. EPA (July 2008)

Annual Mitigation Monitoring Program completed. NFA per U.S. EPA (July 2008)

Annual Mitigation Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Monitoring - 2012 Indoor Air Results

Unoccupied
Annual Operations and Maintenance Plan-Performed by Hull; Indoor Air Sampling
Unoccupied

| Post Treatment (60 Days), OR Quarterly Monitoring (Guarter 3) Indoor Air Results (Lig/m³) | 2/1/2/2008 | P1-11-IA-Q3-01 | 4.74 | ND (0.70] ND (0.75] | Post Treatment (180 Days), OR Quarterly Monitoring (Quarter 4) Indoor Air Results (Lig/m³) | 5/21/2008 | P1-11-IA-Q4-01 | ND (1.42) | ND (1.42) | ND (1.42) |

Post Treatment (360 Days) OR Quarterly Monitoring (Quarter 5) Indoor Air Results (µg/m³

Air Standard<sup>2</sup>
BASELINE INDOOR AIR SAMPLE RESULTS (µg/m<sup>3</sup>)

H&A H&A H&A

Based on recommended defoult attenuation factor of 0.03 for all residences (US EPA VI guidance, 2015).

<sup>2</sup> Ohio EPA Residential Indoor Air Standards, OAC 3745-300-08, Appendix A, Table IV (effective August 1, 2014).

<sup>3</sup> Property-specific residential Indoor air background standard for chloroform (O&M Plan, Appendix A)

### MARCH 2017 HME001.300.0032.xls

# DERIVATION OF BACKGROUND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS DAYTON AVIATION HERITAGE REDEVELOPMENT RROJECT 2701 HOME AVENUE, DAYTON, OHIO 45417

### SUB-SLAB AND INDOOR AIR SAMPLING RESULTS FOR 75 SOUTH ARDMORE AVENUE

Sampling Results for 75 South Ardmore Avenue U.S. EPA ID: 07

Indoor Air Results

1,1,1-TCA 5,200

PCE 42

> TCE. 2.1

Chloroform 113

Sample 1D

Sample Date

Sampler

Sub-Slab Results

H&A

H&A

EPA H&A

H&A H&A

Long-Term Action Level – VAP Residential Indoor Air Standard<sup>2</sup>

YZ. ¥

¥Z ž AZ Z

¥ Z

2.3 A ž

| SASELINE INDOCUS AIR SAMPLE RESULTS (HIG) | 1.29 | NU | 1.29 | NU | 1.29 | NU | 1.29 | NU | 1.20 | N

H&A H&A E

H

H&A

	-			-	-	
Commission.	Sample Date	Sample ID	Chloroform			
slab Vapa	r Screening Levels - L	Sub-slab Vapor Screening Levels - Default Attenuation Factor	37	70	1,400	170,000
	= 0.03	BASELINE	BASELINE SUB-SLAB RESULTS (µg/m³)	(r)	-	*77
		20 20	1440.49	1698.16	29.17	
EPA	6/13/2007	EPA-0/-53	244.40	392.72	3.93	QX
V 073	5/5/2007	75-Ardmore-55-1	340.07	n he (11 /m3)		
LOW	Post Treatment	Post Treatment (30 Days), OR Quarterly Monitoring (Quarter 2) Sub-Slab Results (Pt. III.)	oring (Quarter 2) Sub-Sig	D Kesurs (Pg. III.)	IND ID AN	NA
407	1/8/2008	P1-SS-07-M1-01	2	12.0	(00:0) 05:	
100	Does Transment	Does Treatment (60 Days), OR Quarterly Monitoring (Quarter 3) Sub-Stab Kesuns (LF) III)	oring (Quarter 3) Sub-Sig	D Kesuits [Ht.]	10 10 441	NA
1 017	2/14/2008	P1-5S-07-M2-01	1.27	5.3	Ma (0.00)	
YOU	Post	Post Treatment (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarterly Monitoring (Quarter 4) 300-3101, Association (180 Days), OR Quarter (180 Days), OR Quar	rterly Monitoring (Quarte	al Sub-Sidi Mesenia	1 00	AN
V 87	6/24/2008	P1-SS-07-M3-01	1.03	3.0	10	
100	Post	Post Treatment (360 Days) OR Quarterly Monitoring (Quarter 3) 305-3101 (Section 1987)	rerly Monitoring (Quarte	1 20 Sub-Sub Resource	ND (0.68)	Y.
HSA	12/17/2008	P1-SS-07-M4-01	ND (0.08)	Jak Donnibe (1 in /m3)		
-		Annual Mitigation Monitoring - YEAK 2 2010 300-31013 Nestons 1119	ing - YEAK 2 2010 Sub-S	AND OF STATE	ND (0.75)	NA
HRA	2/17/2010	P1.SS-07-M5-01	ND (0.73)	Tark Bostolles ( In /m3)		
		Annual Mitigation Monitoring - YEAR 3 2011 Sub-Study Resource	ing - YEAR 3 ZUI I Sub-s	The second of th	15ZU UN 1	AN
× 677	3/18/2011	P1-SS-07-M6-01	1.51	ND (0.73)	uh-Slab Results (Ug/m³)	
200	Anounal Mitigation M	Americal Mithadition Monitoring - YEAR 4 or Pre-emptive Mithadian Performance monitoring - VEAR 4 or Pre-emptive Mithadian Performance monitoring - No. (0.75)	ve Mitigation Performanc	Se Monitorino a	ND (0.75)	NA
1077	3/1/2012	P1-SS-07-M7-01	3.00	NO (C / 1) ON	the state of the s	
HGA	2/1/2	Annual Operations and Maintenance Plan-Performed by Hull; Sub-side Assuris	enance Plan-Performed	NA Hull; Sub-side Kesu	ND (3.39)	AN
Hedi	8/20/2015	HME005:75:A082015	ND (2.44)	W. Hull: Sub-Slab Resu	10	
		Annual Operations and Maintenance Plan-reflormed 27 1001 077	renduce Plan-rendimen	NO / 02	ND (3.39)	AN
	A100/01/0	HMF001:75ARD:55081816	ND (2.44)	10: 10:		

s, 2015). August 1, 2014).
ition factor of 0.03 for all residences (US EPA VI guidance
Based on recommended default attenue

<sup>&</sup>lt;sup>2</sup> Property-specific residential indoor air background standard for chloroform (O&M Plan, Appendix A) <sup>2</sup> Ohio EPA Residential Indoor Air Standards, OAC.

# DERIVATION OF BACKGROUND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS DAYTON AVIATION HERITAGE REDEVELOPMENT PROJECT 2701 HOME AVENUE, DAYTON, OHIO 45417

### TABLE A-6

### SUB-SLAB AND INDOOR AIR SAMPLING RESULTS FOR 79 SOUTH ARDMORE AVENUE

Sampling Results for 79 South Ardmore Avenue U.S. EPA ID: 17

Indoor Air Results

Sub-Slab Results

admpler	Sample Date	Sample ID	Chloroform	TOE		
o-slab Va	por Screening Levels - Factor = 0.03	Sub-slab Vapor Screening Levels - Default Attenuation Factor = 0.03 <sup>1</sup>	22	2 3	2	1,1,1-TCA
		BASEL	BASELINE SUB-SLAB DESTILTS (11.7)	0/	1,400	170,000
H&A	5/5/2007	79-Ardmore-SS-1	1000 000			
H&A	5/5/2007	79-Ardmore SC 24	1,409.39	752.39	ND (5.02)	S
		Tentment (30 D) On O	419.94	118.23	6.44	0.41
H&A	5/28/2008	P1-55-17-01-01	varienty Monitoring (Qua	rter 2) Sub-Slab Result	s (µg/m³)	
	Post	10-10-71-00-11	53.71	64.49	ND (0.68)	YZ
H&A	8/27/2008	P1.55.17.03.01 (Up/m³)	varterly Monitoring (Qua	rter 3) Sub-Slab Result	s (µg/m³)	
	Poet T.	10-20-11-00-1	68.36	128.98	1.63	414
H&A	11/17/2008	a pr cc 17 00 Days), OK Quarterly Monitoring (Quarter 4) Sub-Slab Results (La/m³)	varierly Monitoring (Quo	irter 4) Sub-Stab Result	s (Uo/m³)	
	Para	11-55-17-03-01	25.88	35.47	ND (0.63)	1
	1001	Distriction of the Charles of Annitoring (Quarter 5) Sub-Slab Results (Lla/m3)	varterly Monitoring (Qua	rter 5) Sub-Slab Result	s (Ua/m³)	Y.
		Annual Mitigation 11 Tongram completed. NFA per U.S. EPA (July 2008)	Program completed. NF	A per U.S. EPA (July 20	1008)	
	d	hose   Quarterlu M.	Outstand Monitoring - YEAR 2 2010 Sub-Slab Results (µg/m³)	o-Slab Results (µg/m³)		
		Accident Monitoring Program completed, NFA per U.S. EPA (July 2008)	Program completed, NF	A per U.S. EPA (July 20	1800	
	10	Antibol Mitigation Monit	Antitud Mitigation Monitoring - YEAR 3 2011 Sub-Slab Results (µg/m³)	-Slab Results (µg/m³)		
	Annual Mitigation Moni	mitoring - YEAR 4 - P. Monitoring Program completed. NFA per U.S. EPA (July 2008)	Program completed, NF	A per U.S. EPA (July 20	(80)	
H&A	8/10/2012	8/10/2012 P1-55-17-M1-01	Tive Mitigation Performa	nce Monitoring - 2012	Sub-Slab Results (µg/m	(6)
	Annuc	Operations and Main	1.42	0.97	ND (0.75)	AN.
Holl	6/11/2013	HME001, 79, A0611113	ance Plan-Performed by I	Hull; Sub-Slab Results (	ng/m³)	
		2	715	6.6>	000	

<sup>1</sup> Based on recommended default attenuation factor of 0.03 for all residences (US EPA VI guidance, 2015).

<sup>2</sup> Ohio EPA Residential Indoor Air Standards, OAC 3745-300-08, Appendix A, Table IV (effective August 1, 2014).

<sup>3</sup> Property-specific residential indoor air background standard for chloroform (O&M Plan, Appendix A)

1,1,1-TCA 5,200 2 NA A Z X A Z ND (0.88) PCE 42 TCE 1.56 2.1 BASELINE INDOOR AIR SAMPLE RESULTS (µg/m³) Chloroform 113 1.27 Long-Term Action Level – VAP Residential Indoor Air Standard 79 Ardmore-InA-1 Sample 1D Sample Date 5/5/2007 Sampler H&A H&A H&A H&A Holl

## DERIVATION OF BA.:KGROUND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS DAYTON AVIATION HERITAGE REDEVELOPMENT PROJECT 2701 HOME AVENUE, DAYTON, OHIO 45417

TABLE A-7

SUB-SLAB AND INDOOR AIR SAMPLING RESULTS FOR 81, 83, 85 SOUTH ARDMORE AVENUE

Sampling Results for 81, 83, 85 South Ardmore Avenue U.S. EPA ID: 12, 13, 14

1,1,1-TCA

PCE 42

TCE 2.1

Sample ID

Indoor Air Results Chloroform 111

5,200

2 4 2

1.56 A.48

3.12 1.07

BASELINE INDOOR AIR SAMPLE RESULTS (µg/m²)

Long-Term Action Level - VAP Residential Indoor Air Standard<sup>2</sup>

HBA

H&A

Sampler Sample Date

¥ Z Z

Sub-Slab Results

Samples   Samp			-	Ci ci ci	Chloroform	TCE	PCE	1,1,1,-TCA	C.S. EVA .C. P. C. P. P. C. P. P. P. C. P. P. P. C. P.
Vager Screening Lavel L. Defout Attenuation Factor = 0.031         37         70         1,400         17,000           Vager Screening Lavel L. Defout Attenuation Factor = 0.031         BASSADA BESUIS (Bulf)         97.6.61         591.17         6.04 or NO         3,472           Version         H&A         4/72/7007         B3.14-carcines SS-1         17.4.3         NA         11.83 South Act           Version         Feet Treatment (30 Desp), OR Correctly Machinering (30 Desp), OR Correctly Machinering (30 Desp), OR Correctly Machinering (30 Desp), OR Courrelly Mach	D. Address	Sampler	Sample Date	Sample ID			-	000 02.	Long-Term Action
H&A   4/26/1007   83-katchener SS-1   976.61   12.95 South Actions   13.85 South Actio	Sub-slab Vapor Scr	eening Levels - D	efault Attenuation	Factor = 0.031	37	70	1,400	000'0/1	•
H&A   4/26/2007   83.4404 rempleted   12.81 South Arctimose   1.84   1.84   1.85   1.20.08   1.84   1.85   1.84   1.84   1.84			BASE	INE SUB-SLAB RESULTS (µg/m²)		201 17	A DA or ND	34.92	12, 81 South Ardmore Avenue
H&A   4/76/2007   Statement   30 Degrif, OR Ocentreity Monitoring (Ocentre 2) Sub-Sich Result   1,074   1,04   1				81-Ardmore-55-1	470.01		MA	NA	13, 83 South Ardmore Avenue
Post Treatment (20 Days), OR Countedly Machinering (Counter 5) Sub-Stab Results (Lig/m²)   1.24   1.64   1.65   1.62   1.64   1.65   1.64   1.65   1.64   1.65   1.64   1.65   1.65   1.64   1.65	h Ardmore Avenue		1/26/2007	83-Nor sampled	NA NA	AN	90 000	47	14, 85 South Ardmore Avenue
Post Treatment (30 Days), OR Counterly Machinering (Oberter 2) Sub-Stab Results (19g/m²)   1/8 / 2004   1/6	th Ardmore Avenue	H&A	1007/07/4	85-Ardmore-55-1	273.45	279.46	1220.70		
13.83 South Ardinal	th Ardmore Avenue		130 Days 08	Sunrterly Monitoring (Quarter 2)	Sub-Slab Results (µg	(m <sub>3</sub> )		472	12: 81 South Ardmore Avenue
H&A   1/8/2008		Post Irean	יייייייייייייייייייייייייייייייייייייי					472	13: 83 South Ardmore Avenue
Peer Treatment (60 Darys), CN Covartes/Ty Monitoring (Ocorter 3) Sub-Stob Revaits (Lig/m²)   1.72   ND (0.68)   NA   1.8 85 South Andrew   1.2 1 4 7,2008   P 1 - 55 - 12 - 13 - 14 - M3 - 01   1.12   1.12   ND (0.68)   NA   1.4 85 South Andrew   1.2 1 4 7,2008   P 1 - 55 - 12 - 13 - 14 - M3 - 01   1.12   1.12   ND (0.68)   NA   1.4 85 South Andrew   1.5 1 2 - 13 - 13 - 14 - M3 - 01   1.12   1.12   ND (0.68)   NA   1.4 85 South Andrew   1.5 1 2 - 13 - 13 - 14 - M3 - 01   1.12   1.12   ND (0.68)   NA   1.4 85 South Andrew   1.5 1 2 - 13 - 13 - 14 - M3 - 01   1.12   1.12   ND (0.68)   NA   1.4 85 South Andrew   1.5 1 2 - 13 - 13 - 14 - M3 - 01   1.12   ND (0.68)   NA   1.4 85 South Andrew   1.5 1 2 - 13 - 13 - 14 - M3 - 01   1.12   ND (0.68)   NA   1.4 85 South Andrew   1.5 1 2 - 13 - 13 - 14 - M3 - 01   1.12   ND (0.68)   NA   1.4 85 South Andrew	2: 81 South Ardmore Avenue	H&A	1/8/2008	P1-55-12-M1-01	2.2		1.03	NA A	14: 85 South Ardmore Avenue
Post Treatment   200 Days), OR Courtesty, Mortivering (Goartes 4) Sub-Stab Be int Lig/m <sup>2</sup>     H&A	ith Ardmore Avenue			County Ourseles	Sub-Slob Results (UG	/m <sub>2</sub> )			12. 81 South Ardmore Avenue
H&A   2/120/JUD6		Post Treat	nent (60 Days), OR	Juditerly Monitoring (2007)	1.32		ND (0.68)	¥	13, 83 South Ardmore Average
Post Treatment (190 Pays), OR Characterly Monitoring (Quarter 4) Sub-Stab Re int (Lig/m²)   2.74   ND (0.68) NA   14.85 south Andman   1.80 Days), OR Characterly Monitoring (Quarter 5) Sub-Stab Re int (Lig/m²)   1.24   ND (0.68) NA   14.85 south Andman   1.20 Days), OR Characterly Monitoring (Quarter 5) Sub-Stab Re int (Lig/m²)   1.24   ND (0.68) NA   14.85 south Andman   1.88 south Andman   1.12	12: 81 South Ardmore Avenue	H&A	2/20/2008	P1-SS-04-M2-01	1.86	2.31	ND (0.64)	A.A.	14; 85 South Ardmore Avenue
Post Treatment 180 Jorgy)	with Ardmore Avenue		1.1.1.	O secula Monitorina (Quarter	() Sub-Slab Re alts (µ	g/m³]			12: 81 South Ardmore Avenue
H&A   7/2/2008   F1-52-12-13-14-M3-01   3.13   2.74   ND (0.68) NA   14.85 South Andrew   Prof Treatment (350 Devy) OF Chernety Monitoring (Cherner's) Sub-Stob Revih (Lig(m²)   1.24   ND (0.68) NA   12.81 South Andrew   12.77/2008   F1-55-12-13-14-M4-01   1.12   1.24   ND (0.68) NA   12.81 South Andrew   12.81 South Andrew   12.77/2008   F1-55-12-13-14-M4-01   1.12   1.12   1.12   ND (0.68) NA   12.77/2008   F1-55-12-13-14-M4-01   1.12   1.12   1.12   ND (0.68) NA   12.77/2008   F1-55-12-13-14-M4-01   1.12   1.12   ND (0.68) NA   12.77/2008   F1-55-12-13-14-M4-01   1.12   1.12   1.12   ND (0.68) NA   12.77/2008   F1-55-12-13-14-M4-01   1.12   1.12   1.12   ND (0.68) NA   12.81 South Andrew		Post Treat	nent (180 Days), OK	Coursely months and and					13. 83 South Ardmore Avenue
Pag Techneri (360 Days) OR Charmerly Manifering (Charmer 3) Sub-State Rev. In 1,124 ND (0.08) NA 12,8 13 South Andm.  H&A  12/7/2008 P1-55-12-13-14-M-4-01  1.124 ND (0.08) NA 11-8 83 South Andm.  14-85 South Andm.  Annual Miligation Manifering - YEAR 2 2010 Sub-State Rev. III (19/1*)  Annual Miligation Manifering - YEAR 4 or Pre-emptive Miligation Performance Manifering - 2,012 Sub-State Rev. III (19/1*)  Demolished  Annual Operations and Machemance Plant-Bettomance Washearmance Plant-Bettomance Plant-Bettomanc	2, 81 South Ardmore Avenue 3, 83 South Ardmore Avenue	H&A	7/2/2008	P1-SS-12-13-14-M3-01	3.13	2.74	ND (0.68)	A Z	14: 85 South Ardmore Avenue
Post Technical Total Laboratory Live Security Concurrence, removed from monitoring program due to unhobitable condition. No electric, vindows bride only integration Manifecting - YEAR 2 2010 Sub-Stab Results (Lig/In/2)  Arrucal Mitigation Manifecting - YEAR 4 or Pre-emptive Mitigation Manifecting - YEAR 3 2011 Sub-Stab Results (Lig/In/2)  Demolished  Arrucal Operations and Maintenance Plan-Performed by Hull, Sub-Stab Re- (In [Lig/In/2)]	4: 85 South Ardmore Avenue		0	Ourselv Monitoring (Quarter	S) Sub-Slab Re ults (µ	g/m <sup>3</sup> )			12, 81 South Ardmore Avenue
H&A 12/7/2008 P1-SS-12-13-14-M4-01 1.12 1.24 ND (0.06) NA 146-85 South Anomary Mathematics of the Mathematic		Post Treat	ment (360 Days) On	The state of the s				1	13, 83 South Ardmore Avenue
Arryol Mitigation Monitoring program due to uninobiable condition. No electric, vindovs broken (misting) entries boarded concurrence, removed from monitoring program due to uninobiable condition. No electric, vindovs broken (misting) entries boarded  Arryol Mitigation Monitoring. YEAR 3 2011 Sub-Stab Revolts [Ipg], ***)  Demotished  Demotished  Arryol Operations and Maintenance Plan Performed by Hull; Sub-Stab Re vin [Ibg]***)	buth Ardmore Avenue		12/7/2008	P1-55-12-13-14-M4-01	1.12	1.24	ND (0.68)	¥.	14, 85 South Ardmore Averue
	outh Ardmore Avenue		Amend Mithornion M	onitoring - YEAR 2 2010 Sub-Sle	b Results (µg/m³)				
	With USEPA conc	urrence, removed fr	om monitoring progra	am due to unihabitable condition	. No electric; v indow	s broken/missing	; entries boarder	2	With USEPA con
				S-dvS-1102 S 3 2011 Sub-Si	ob Results (µg/ n³)				
			Armual Miffgation N	contoreng - trans 2 act					
				Demolished					Acres
Arrucal Operations and Molnemonce Plon-Performed by Hull; Sub-Slab Re vits (Lig/m²)		of the Manifester	chor - YFAR 4 or Pre-	-emptive Mitigation Performance	Monitoring - 2012 S	ub-Slab Results	1cm/6n		
Denolityed Amual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Re v/hs [µg/m²]	Arm	ol Minganon money	P. I.						
Arnual Operations and Maintenance Plan-Performed by Hull; Sub-Slab Re Uhs [µg/m²]				Demolished					
7-14		Arriva	Operations and Ma	intenance Plan-Performed by Hu	II; Sub-Slab Re ults (p	( <sub>c</sub> m/ <sub>b</sub>			
Detaclished				Demolished					

P1-IA-1 3-M3-UI Property owner was not available to provide access to unit for sampling. Unit is unoccupied at this time

7/2/2008

H&A

H&A

H&A

A X X

| H&A | 4/26/2007 | Bi Andender-RoA | 3/96 | 3/12 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/

Y Z

With USEPA concurrence, removed from monitoring program due to unitabilitable condition. No electric; windows broken/missing; verifies boarded

Arnual Mitigation Monitoring - YEAR 3 2011 Indoor Air Results  $(\mu g/m^3)$ 

Arvual Mälgarian Monitoring - YEAR 4 or Pre-emptive Mitigation Performance Manitoring - 2012 Indoor Air Results (Ilg/m<sup>2)</sup>

Arruol Operations and Maintenance Plan-Performed by Hulls Indoor Air Sampling (µg/m³)

Demolished

Demolished

Facual on recommended default attenuation factor of 0.03 for all residences (US EPA VI guidance, 2015).

7 Onio EPA Residental Indoor Air Sandards, OAC 3745-300-08, Appendix A, Table IV (effective August 1, 2014).

8 Property-specific residential indoor air badsground standard for dilaroform (O&M Plan, Appendix A).

# DERIVATION OF BACKGROUND CONCENTRATION FOR CHLOROFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY RESIDENTIAL RECEPTORS 2701 HOME AVENUE, DAYTON, OHIO 45417

### SUB-SLAB AND INDOOR AIR SAMPLING RESULTS FOR 110 SOUTH ARDMORE AVENUE TABLE A-8

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Sampling Results for 110 South Ardmore Avenue U.S. EPA ID: 04

Indoor Air Results

b-slab Vapor Screening Le  Factor =  FPA 6/6/2007  H&A 5/4/2007  H&A 1/8/2008	Sub-slab Vapor Screening Levels – Default Attenuation Factor = 0.03 <sup>1</sup>	111010101111		100	
Facto PA 6/6/20 8A 5/4/20 8A 1/8/20	or = 0.03 <sup>1</sup>		2	and a	1,1,1,-TCA
	The state of the s	37	70	1,400	170,000
	BASELIN	BASELINE SUB-SLAB RESULTS (µg/m³)			
	EPA-04-5S	398.45	4 181 15		
	110 Ardmore-SS-1	20 000		141,709.33	Y Z
	Post Treatment (30 Days) Op D.	483.12	1,451.04	24,419.63	6.548
	108 P1-SS-04-M1-01 NO P1-SS-04	arreny Monitoring (Quarter 2)	Sub-Slab Results	(µ8/m³)	
	Post Treatment (60 Days) OP Outstall M. 1	ND (0.73)	ND (0.70)	1.97	A Z
H&A 2/14/2008	008 P1-55-04-M2-01	Monitoring (Quarter 3)	Sub-Slab Results	(hg/m³)	
	Post Treatment (180 Days) Op O.	(8D (0.73)	ND (0.75)	4.61	AN
H&A 6/24/2008	108 p1-55-04-M3-01 http://doi.org/10.000/pip/m3/pip/pip/pip/pip/pip/pip/pip/pip/pip/pi	witerly monitoring (Quarter 4)	Sub-Slab Results	(µg/m³)	
	Post Treatment (360 Days) OP Our	ND (0.08)	ND (0.65)	ND (1.63)	NA
H&A 12/17/2008	008 P1-SS-04-M4-01 Counterly Monitoring (Quarter 5) Sub-Slab Results (µg/m³)	urierly monitoring (Quarter 5)	Sub-Slab Results	(ma/m <sub>3</sub> )	
	Annual Mitigation Marita	ND (0.08)	1.45	29.17	AN
H&A 2/17/2010	H	P1-SS-04-MS-01	Results (µg/m³)		
	-	1.22	1.61	21.71	NA
Per U.S. EPA cond	urrence mitiontion porton	fination and formal of the state of the stat	Results (µg/m³)		
Annual Mitigat	Annual Militarian Monitorian: PARE A see a performance monitoring suspended due to vacancy of propoerty, no utilities, and no access	inforing suspended due to vaca	ncy of propoerty,	no utilities, and no ac	Cess
Per U.S. EPA cond	Per U.S. EPA concurrence, militaritien nerformence manigation Performance Monitoring - 2012 Sub-Slab Results (µg/m³)	ive Mitigation Performance Mo	mitoring - 2012 S	ub-Slab Results (µg/m	3)
	Annual Operations and Mainte	mornig suspended due to vaca	ncy of propoerty,	no utilities, and no acc	cess
Heil	The state of the s	nce Plan-Performed by Hull; Su	ub-Slab Results (1)	a/m3)	

<sup>1</sup> Bosed on recommended default antenuarian factor of 0.03 for all residences (US EPA VI guidance, 2015).

<sup>2</sup> Ohio EPA Residential Indoor Air Stendards, OAC 3745-300-08, Appendix A, Toble IV (effective August 1, 2014).

<sup>3</sup> Property-specific residential indoor air background standard for chloroform (O&M Plan, Appendix A).

ampier	Sample Date	Sample ID	Chloroform	TCE	PCE	
ig-Term Acti	Long-Term Action Level — VAP Residential Indoor Air Standard <sup>2</sup>	al Indoor Air Standard <sup>2</sup>	1113	2.1	42	5,200
- 42		BASELINE INDOOR AIR SAMPLE RESULTS (110 /m3)	SAMPLE RESULTS (1)	(m3)		
EFA	7/19/2007	EPA-04-IA	0.88			
EPA	7/19/2007	EPA-04-IA-DUP	000	07.1	54.27	NA
H&A	5/4/2007	10 Ardmore-Ind. 1	0000	1.83	55.62	¥Z
	Post Treatment (3	O Days Op Ourted	2.44	3.93	128.88	8.19
H&A	1/8/2008	8/2008 P1.1A.04.441.01	moring (Judicher 2)	ndoor Air Results (L	(¿m/Br	
	Post Treatment (6	O Davel Op Oursell in	ND (0.98)	ND (1.22)	4.68	AN
H&A	2/14/2008	14/2008 pt 14 02 12 0.2 0.2 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	Moring (Quarter 3)	ndoor Air Results (L	lg/m³)	
	Post Treatment (18	30 Down Op On 1	ND (0.58)	ND (0.75)	0.81	AN
H&A	6/24/2008	(24/2008 pt 14 O4 112 C) 14 O4 112 C) Indoor Air Results (µg/m³)	nitoring (Quarter 4)	Indoor Air Results ()	ng/m³)	
	Post Treatment (3c	50 Daws Op Our 4-1	ND (0.93)	ND (1.15)	3.32	AN
H&A	12/17/2008	/17/2008 p. 1.A. A. O. D. D. 1.A. A. O. D. 1	Moring (Quarter 5)	ndoor Air Results (L	1g/m³)	
	Annual	Mitigation Monitoring Veta	ND (0.98)	ND (1.22)	ND (0.95)	A'N
H&A	2/17/2010	b) In Od 117 O.	2 2010 Indoor Air I	(esolts (µg/m³)		
	Alound	Miscrip 4-M3-01	2.15	ND (1,22)	ND (0.95)	AN
Per U.S.	EPA concursors mitimati	the state of the s	3 2011 Indoor Air	Results (µg/m³)		
Annuc	Annual Mitigation Manipulary YELD 4.	performance monitoring sus	pended due to vaca	ncy of propoerty, n	o utilities, and no	Officese
Per U.S.	ar U.S. EPA concurrence, militaglion performance many Mitigation Performance Monitoring - 2012 Indoor Air Results (µg/m²)	A or re-emptive Mitigati	on Performance Mor	iltoring - 2012 Inde	oor Air Results (µg	/m <sub>3</sub> )
	Annual Operations and Maintanage and Indianage of Proposity, no utilities, and no access.	Annual Operations and Maintanage Bland	sended due to vacar	icy of propoerty, n	o utilities, and no	access.
Hull		and manufacture right-ren	formed by Hull; Indo	or Air Sampling (µ	a/m <sup>3</sup> )	

MARCH 2017 HMED01.3D0.0032 45

DERIVATION OF BACKGROUND CONCENTRATION FOR CHICKGFORM IN INDOOR AIR FOR THE ASSESSMENT OF OFF-PROPERTY REDIDENTIAL RECEPTORS DAYTON AVIATION HERITAGE RESYLLOPMENT PROJECT 2701 HOME AVENUE, DAYTON, OHIO 45417

TABLE A-9

POST-REMEDIAL INDOOR AIR SAMPLING RESUITS FROM EIGHT STRUCTURES IN THE RESIDENTIAL AREA OF CONCERN

Location	Sample ID	Date	(m/6n)
CE C Andmonto	P2.IA-35-M1-01	6/24/2008	1.42
23 3 Ardmore	P2-IA-35-M2-01	7/30/2008	1.22
SS S Ardmore	P2-14-35-M3-01	11/17/2008	<0.83
55.5 Ardinore	P2-IA-35-M4-01	5/19/2009	13,67
35 3 Arginore	02.14.35.Md.01	6/17/2009	1.03
SS S Ardmore	02.14.25.MS-01	2/17/2010	<0.78
55 S Ardmore	02 IA 25 MA.01	3/18/2011	<0.83
55 S Ardmore	10 54 27 40 01	7/30/2008	1.12
S9 S Ardmore	F.Z-18-37 -143 G1	11/17/2008	<0.78
59 S Ardmore	P. C. M. S. C. M. C. C.	6/10/2000	2.3
59 S Ardmore	P2:IA-3/-Ma-01	0100/21/0	3.13
S9 S Ardmore	P2-IA-3/-M3-UI	1100/0/1/	<0.63
59 S Ardmore	P2-IA-37-M6-01	0/1/2013	<0.83
59 S Ardmore	P2-IA-37-M7-01	3/1/2017	5023
61, 63A, 63B S Ardmore	P1-IA-18-M1-01	1/8/2008	1517
63A, 638 S Ardmore	P1-IA-19-M1-01	1/8/2008	<1.27
A1 A3A, 638 S Ardmore	P1-IA-20-M1-01	1/8/2008	0307
41 474 A7R S Ardmore	P1-IA-78-M2-0021	2/14/2008	Yeus Y
Cox Age 5 Archmore	P1-IA-19-M2-02	2/14/2008	2.54
01, 034, 038 3 200000	P1.14-20-M2-02	2/14/2008	<0.73
63A, 63B 3 Ardinore	10. FM 31. A1 10	6/24/2008	1.37
61, 63A, 638 S Ardmore		8/02/26/4	3.71
61, 63A, 638 S Ardmore	PI-14-19-M3-01	8000/10/1	<0.83
61, 63A, 638 S Ardmore	P1-IA-20-M3-U1	DOCT (17/01	<0.78
61, 63A, 638 S Ardmore	P1-IA-18-W4-01	0007/1/07	10.74
61, 63A, 638 S Ardmore	P1-IA-19-M4-01	12/11/2009	8800
61. 63A. 638 S Ardmore	P1-IA-20-M4-01	12/11/2008	0000
61. 63A, 638 S Ardmore	P1-IA-18-MS-01	2/17/2010	0000
41 424 A38 S Ardmore	P1-IA-19-M5-01	2/12/2010	20.00
100, 030, 030 C Ardmore	P1.1A-20-M5-01	2/17/2010	<0.83
OSA, OSB S Ardmore	P1-IA-18-M6-01	3/18/2011	171
61, 63A, 63B S Ardmore	10-W6-01	3/18/2011	<0.78
61, 63A, 63B 3 Ardinois	10.5M OC AL 10	3/18/2011	<0.78
61, 63A, 63B S Ardmore	10:10:11.01:01	11/28/2007	<0.68
71 S Ardmore	10.50 11 vi 10	2/12/2008	474
71 S Ardmore	10.00	5/21/2008	<1.42
71 S Ardmore	10 11 10 11 10	1/8/2008	156
75 S Ardmore	PI-IA-0/-MI-01	BU00/81/6	2.49
75 S Ardmore	P1-IA-0/-M2-02	8000/40/4	2.59
75 S Ardmore	P1-IA-0/-M3-01	8000/21/21	3.27
75 S Ardmore	P1-1A-07-M4-01	01001210	<073
75 S Ardmore	P1-IA-07-MS-01	2/17/2010	1.0
75 S Ardmore	P1-IA-07-M6-01	3/18/2011	000
75 S Ardmore	P1-IA-07-M7-01	3/1/2012	4.4
70 S Ardmore	P1.IA-17-01-01	5/28/2008	<0,73
TO C Andenore	P1-JA-17-Q2-01	8/27/2008	<0.83
/ A S Ardmore	P1.14-17-03.01	11/17/2008	<0.78
79 S Ardmore	01.1A.17.MI.01	8/10/2012	<0.83
79 5 Ardmore	ALIE DO - 20 ADA1113A	1	1,5
79 S Ardmore		L	1.51
81, 83, 85 5 Ardmore	pt (A 13.M1.0)	1/8/2008	161
81, 83, 85 5 Ardmore	101111111111111111111111111111111111111	1/8/2008	171
81, 83, 85 S Ardmore	10 CM CT 41 TO	2/20/2008	<0.83
81, 83, 85 S Ardmore	Con	2/14/2008	89'0>
81, 83, 85 S Ardmore	10 cm 11 min	2/14/2008	0.73
81, 83, 85 S Ardmore	P1-IA-14-M2-01	7/2/2008	1.42
81, 83, 85 S Ardmore	P1-1A-12-M3-01	7/2/2008	1.07
	F1-1A-13-M3-01	12/17/2008	<0.78
81, 83, 85 S Ardmore	PI-IA-IZ-Ma-OI	8002/21/01	
81, 83, 85 S Ardmore	P1-(4-13-M4-01	1/8/2008	
110 S Ardmore	P1-IA-04-M1-01	2/14/2008	<0.58
110 S Ardmore	P1.18.08-M2.01	4/24/2008	<0.93
110 S. Ardmore	PI-M-M-M-14	-	
100000000000000000000000000000000000000	-	BO00/21/01	8602

### ATTACHMENT 1

ProUCL Output for Evaluation of Post-Remedial Indoor Air Concentrations at Seven Residential Structures Where the SSDS Was Demonstrated to Control Vapor Intrusion

T	АВ		С	D	1	E	F	G		Н	I		J	-	K		L
+	A		<u> </u>	Backgrou	ind St	atistics	for Data S	ets with	Non-	-Detect	s						
	User Sele	o hat	ntions	1	2000												
	Date/Time of C			DrollCl 5	5.12/9/	2017 2:	21:08 PM						40.135			-	
-	Date/ Time of o	From		Copy of F	Revise	d BTV E	valuation	_8 home	es_SM	IE Revi	ised 2-9	3-1/	b.xis				
	Fu	ıll Prec		OFF								_					
5	Confidence	Coeffi	icient	95%								_			_		
7		Cove		95%								_					
8 er	ent or Future K O			1									_	_			
9 ur	mber of Bootstrap	Opera	ations	2000													
0								_									
-	Chloroform IA																
12							General	Statisti	cs								
13		-	T-4-1 N	lumber of	Ohear	vations	55				Numb	oer c	of Miss	ing C	bserva	tions	0
14		NI.	otal N	of Distinct	Obser	vations	34										
15		Nu	mber			Detects	26								Non-De		29
16			Nha	mber of Di			24				Num	nber			Non-De		12
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137		The	use of US	L tends to p	provide a bala	ance betwee	n talse p	ositives ar	nood to be	compar	rovided the data red with the BTV	
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139												

### APPENDIX B

Engineered Control Inspection Form

### Dayton Aviation Heritage Redevelopment Property: Residential Area of Conecrn Mitigation Monitoring — SSD Annual O&M Inspection

operty Address:	ty Address: Temperature (Ambient):									
enant:				Temperature (House):						
wner:										
Owner's Address:										
nspector:			-							
Date/Time:										
xterior System Inspection			Inte	rior Syste	em Inspection	1				
Is fan intact and operational? Yes No			He	Heaving or subsidence at suction point?				No		
Any unusual fan vibration? Yes No			Any	whistling	noises noted?		Yes	No		
s vent piping/downspout intact?	Yes	No	Caulk seals inspected?		Yes	No				
New caulking required around fan/piping connections?		No	Crac	Cracking or separation of joints?			Yes	No		
ran/ piping connections.			Floo	or and w	all seals intac	łś.	Yes	No		
Tenant Observations										
Any changes in fan noise/vibration	2 \$		Yes	no						
Any lack of differential pressure in		neter?	yes	No						
Have you turned the fan off for an			Yes	No	Reason:					
			ent? Yes	No						
Have you or the owner made any		me basem	emi res							
If so what were the chan	ges:					-				
Measurements							Yes	No		
System Vacuum Reading		(in. H <sub>2</sub> (	O at "U Tu	be")	Vacuum read	ding steady?	Tes	110		
Micromanometer reading:										
On pipe:										
At sub-slab point:			_							
Comments:										

### APPENDIX C

Sub-Slab Depressurization System O&M Manuals

March \_, 2017

Mr. Freddie Gultney 3413 Highview Hills Road Dayton, Ohio 45417

Re: Operations & Maintenance Manual for Sub-Slab Ventilation System at 113 S. Ardmore Avenue

Dear Mr. Gultney:

Enclosed please find the Operations & Maintenance Manual for the sub-slab depressurization (SSD) system that was installed at your house, located at 113 South Ardmore Avenue, in December 2007. This user manual has been written to describe how the system works. It also outlines the procedures undertaken by Home Avenue Redevelopment, LLC and its contractors to maintain the system and verify that it continues to operate properly. For your convenience, a clear plastic folder has been provided in the back of the manual, where you can insert copies of your indoor air and soil vapor test results.

Two copies of the Operation & Maintenance Manual are being provided to you: one copy for you and one copy for your tenant at 113 South Ardmore Avenue.

We hope you will take a few minutes to read through the Operations & Maintenance manual. In the meantime, if you have any questions about the SSD system at your house, or suspect it is not running properly, please do not hesitate to call Home Avenue Redevelopment, LLC at 614-793-8777.

Sincerely,

Bradford White Owner/Manager

cc: Joseph M. Smindak, Ohio EPA, VAP



# SUB-SLAB DEPRESSURIZATION (SSD) SYSTEM OPERATION & MAINTENANCE MANUAL

FOR: 113 S. ARDMORE AVENUE DAYTON, OHIO 45417

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### 1.0 INTRODUCTION

This Operation & Maintenance (O&M) manual has been prepared to serve as a user manual for the sub-slab depressurization (SSD) system installed at 113 S. Ardmore Avenue, Dayton, Ohio. An O&M manual for the SSDS system installed at 113 S. Ardmore Avenue, Dayton, Ohio was previously provided to you by the Delphi Corporation. The O&M manual was revised for the purpose of providing you with updated background information and points of contact.

From 2007 to 2008, Delphi Corporation and U.S. Environmental Protection Agency (EPA) conducted environmental investigation activities near the former Delphi Automotive Holdings Group Home Avenue Operations, located at 2701 Home Avenue, Dayton, Ohio (Home Avenue facility). Pursuant to an Administrative Order on Consent between Delphi Corporation and the U.S. EPA, Delphi Corporation had collected soil vapor and indoor air samples in homes near the Home Ave facility. Samples were tested for the presence of trichloroethylene (TCE), tetrachloroethylene (PCE), and chloroform.

Because at least one of the chemicals listed above was found in an indoor air sample collected at this house in an amount greater than the Ohio Department of Health (ODH)-recommended indoor air screening level, and at least one of the chemicals was detected in a sub-slab soil vapor sample collected from beneath this house in an amount great than the ODH-recommended screening level for sub-slab soil vapor, a SSD system was installed in December 2007. When operating properly, the SSD system reduces or prevents sub-slab soil vapors from entering the house.

SSD systems are a proven, effective and economical means for intercepting subsurface soil vapors that might otherwise infiltrate into a structure. These systems have been successfully installed and operated in residential structures at locations throughout the United States.

The Home Avenue facility ceased operations in 2008. DPH Holdings Corp. submitted a request to enter the Home Avenue facility property into the Voluntary Action Program administered by Ohio Environmental Protection Agency (Ohio EPA). The Voluntary Action Program establishes rules for environmental assessment and remediation.

Home Avenue Redevelopment, LLC (HAR) purchased the Home Avenue facility and assumed responsibility for completing the voluntary action that was underway. The City of Dayton and HAR are co-Volunteers in the process. O&M of the SSD system is required by the Voluntary Action Program.

The SSD system at this location was installed in accordance with the Access Agreement signed between Delphi Corporation and the owner of the property at that time. The access agreement was updated in 2013 to include the current owner of the Home Avenue facility and the current home owner (or tenant). A proposed revision to the access agreement is included in Appendix A.

In accordance with the Access Agreement, the performance of the SSD system is routinely monitored, fulfilling requirements originally established under U.S. EPA, and superseded by requirements established in an Operations and Maintenance Agreement between Ohio EPA and the Volunteers, as described in the Operations and Maintenance Plan (O&M Plan). Performance monitoring includes inspection of the SSD system and its components, and collection of soil vapor and indoor air samples for laboratory analysis as specified in the O&M Plan. The anticipated schedule for performance monitoring at this location is described in Section 4 of this manual. Performance monitoring will be performed until such time as it is determined by HAR and Ohio EPA VAP that operation, maintenance and monitoring of the SSD system is no longer required.

The previous owner of the Home Avenue Facility and HAR have taken steps to remove historic sources of soil vapor from the Home Avenue facility, which have included operating a soil vapor extraction (SVE) remediation system and conducting mass soil excavation.

### 2.0 SYSTEM DESCRIPTION

At the time of installation, Delphi Corporation contracted A-Z Radon Services, a certified radon mitigation contractor licensed by the State of Ohio Department of Health and experienced in installation of SSD systems for vapor removal at residential locations, to design and install the SSD system at this address. The SSD system design for this house was initially approved the by U.S. EPA and subsequently incorporated as a remedial action in the voluntary action, by agreement with Ohio EPA.

An SSD system operates by creating a lower air pressure beneath the slab of this house relative to the air pressure inside. The reduced sub-slab air pressure, or vacuum, is created by operation of an electrically powered fan that draws air from beneath the slab and exhausts it through piping installed along the side of the house extending above the roofline.

The SSD system installed at this location consists of the following components:

- One layer of 6 ml cross-linked plastic vapor barrier membrane laid across the basement dirt floor and approximately three (3) feet up the basement side walls, fastened with furring strips;
- Ventilation matting installed along the north and east areas of the basement;
- Two suction points installed through the plastic vapor barrier membrane in the basement;
- One Radon Away<sup>TM</sup> model XP201 fan assembly installed on the exterior of the house;
- PVC piping installed on the exterior of the house; and
- One fan disconnect switch, locked by padlock, installed on the exterior of the house.

A diagram and photographs of the SSD system installed at this house are presented in Appendix B. Manufacturer specifications, instructions for operation and warranties for the fan assembly are presented in Appendix C.

### 3.0 OPERATION AND MAINTENANCE

### 3.1 Operation

The SSD system creates a vacuum to change the path of soil vapor from entering your house through the foundation slab to be vented outside, above the roof. To ensure the SSD system is actively preventing soil vapors from entering the structure, it is necessary that it remain operation at all times. It is recommended that you check the system on a regular basis to ensure it is operation properly. In addition, HAR and/or its contractor is required to check the system each time indoor air and sub-slab soil vapor samples are collected, as described in Section 4 of this manual.

The SSD system installed at this location is connected to the home's electrical power supply. The SSD system fan has been installed with a disconnect switch enclosed in a locked box to prevent unauthorized access or accidental shut-off. You have been provided a key for the padlock so that the disconnect switch can be accessed if necessary. A manometer, or "U-tube" (Appendix B, Photo 2), is installed above the fan assembly on the exhaust pipe mounted to the exterior of the building, and provides visual verification that negative pressure is being maintained beneath the structure. You should perform the following monthly to verify that the SSD system is operating properly:

- Visually inspect the SSD system and piping to look for signs of damage.
- Visually inspect the U-tube to confirm that a vacuum is maintained- liquid levels in the tubes should not be even with each other (i.e. one side should be higher than the other).
- Verify that the exhaust point remains unobstructed- obstructions could prevent discharge of air to the atmosphere.
- Listen to the fan assembly to verify it is operating- you should be able to hear a low humming noise and or the rush of air out of the fan into the exhaust piping.

If at any time the SSD system does not appear to be running, check the power supply in the house to verify there has not been a power outage. If a power outage has not occurred, check the padlocked disconnect switch to determine whether someone has turned it off. Turn the switch to the "on" position and check the SSD system to confirm that its operation has been restored. If still not operating, check the electrical panel to see if the breaker for the SSD system has tripped. If the break is in the "off" position, reset the breaker to the "on" position. If the problem persists, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

### 3.2 Maintenance

Maintenance, alteration and repair of the SSD system will be performed, as necessary, by HAR contractors. Performance of such activities by anyone other than HAR's contractors could result in damage to the SSD system and reduction of its effectiveness. Furthermore, alteration of attempted repair by others may result in voiding the manufacturer's warranties.

As stated in Section 3.1 of this manual, if you observe that the SSD system is damaged and/or not operating properly, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

If during a scheduled sampling and inspection event (described in Section 4 of this manual), HAR's representatives determine that repair or maintenance of the system is necessary, HAR will arrange for service to the SSD system as soon as possible.

### 4.0 MONITORING

By signing the Access Agreement in Appendix A, you have granted HAR and its representatives permission to collect soil vapor and indoor air samples at this location to verify that the SSD system is working properly.

Pursuant to Ohio EPA's requirements, annual inspections, system vacuum/pressure will be monitored, the system fans/blower will be checked for operation, several components (including system piping and seals) will be visually inspected, and system operation by the resident will be confirmed. Sampling of the subslab vapor and indoor air may be conducting during the annual inspection (refer to Section 5.0 of the February 2017, O&M Plan¹ for the random selection process) until the SSD system is no longer required.

The sub-slab vapor and indoor air samples collected at this location will be sent to a laboratory certified to perform analysis of such samples. These activities will be performed at no cost to the owner or occupants of this structure.

The results of the laboratory testing will be presented to the owner of this property, and shared with environmental agencies such as the Ohio EPA, Ohio Department of Health, and other government agencies as appropriate. For your convenience, this O&M manual contains plastic organizer sleeves for storage of sampling data and other relevant information.

<sup>&</sup>lt;sup>1</sup> Hull & Associates, Inc., 2017. Operation and Maintenance Plan for the Dayton Aviation Heritage Redevelopment Property. Hull Document No. HME001.300.0075, February 2017.

### 5.0 CONTACT INFORMATION

HAR appreciates your continued cooperation concerning SSD system operation, maintenance and performance monitoring at this location. Should you have any questions concerning the environmental sampling performed at this location, please contact one of the following parties:

HAR – Bradford White – 614-7903-8777

Ohio EPA Southwest District Office – Voluntary Action Program Site Coordinator – 937-285-6064

In the event the SSD system is not operating properly, please contact HAR at 614-793-8777 to report the trouble.

### APPENDIX A

Access Agreement

### HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

This Agreement is made between Freddie Gultney, whose mailing address is 3413 Highview Hills Road, Dayton, Ohio 45402, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees to the Property located at 113 S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as 1. "Property" at reasonable times and at reasonable notice for the purpose of:
  - Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, a. including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery b. and treatment systems at the Property.
- For purposes of providing note under this Agreement, the contact person for the Owner is \_. The contact person for HAR is Brad White, 2. , phone number \_ phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR. 3.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment 4. systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system. 5.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and 6. obtain all necessary approvals from public agencies.
- All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if 7. applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this 8. Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or 9. continue the activities described in this Agreement.
- HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment 10. system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
- This Agreement is intended to be and shall be construed as a grant of temporary right of access 11. and not an interest in the Property.

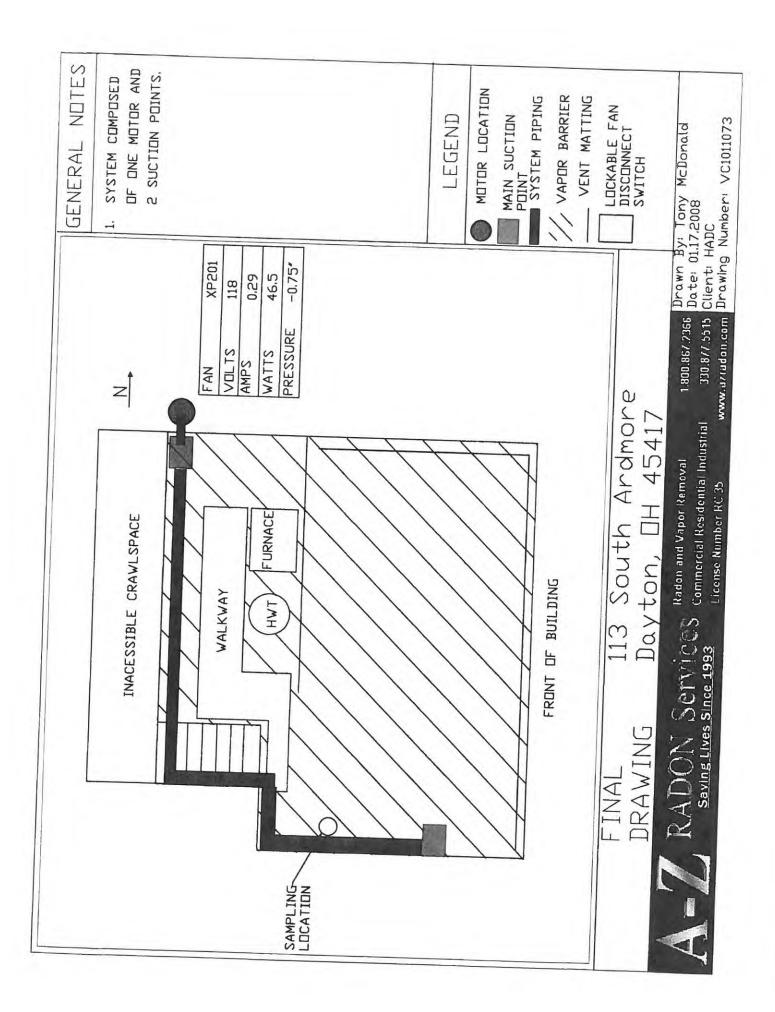
- 12. The results of testing performed at the house will be provided to the Owner as soon as possible. Results will also be shared with environmental agencies such as the Ohio EPA, Ohio Department Health and other government agencies as appropriate. Owner agrees that HAR and its representatives may contact Owner's tenant to coordinate sampling.
- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
- This Agreement is governed by Ohio law.
- 15. This Agreement shall be effective on the first date it is fully executed and expires whenever the environmental testing, recovery and/or treatment system is no longer required as determined by the Ohio EPA or HAR.
- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

rame (org	nature and Print)
Date	
HOME AV	ENUE REDEVELOPMENT, LLC
	nature and Print)
Name (Sigr	

OWNER

### APPENDIX B

SSD System Diagram and Photos



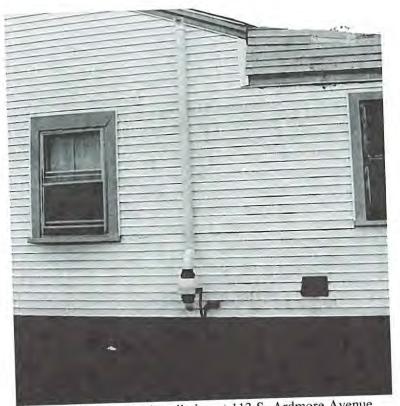


Photo 1: SSD System installation at 113 S. Ardmore Avenue



Photo 2: Membrane installation and suction point in basement at 113 S. Ardmore Avenue



Photo 3: Membrane installation and suction point in basement at 113 S. Ardmore Avenue



Photo 3: Manometer ("U-tube") on SSD system installed at 113 S. Ardmore Avenue

### APPENDIX C

Manufacturer's Instructions, Specifications and Warranties



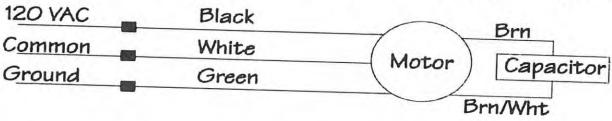
# XP/GP/XR Series Fan Installation Instructions

# Please Read And Save These Instructions.

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

- **1. WARNING!** Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible of flammable materials.
- 2. WARNING! Do not use fan to pump explosive or corrosive gases.
- 3. WARNING! Check voltage at the fan to insure it corresponds with nameplate.
- 4. WARNING! Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
- NOTICE! There are no user serviceable parts located inside the fan unit.
   Do NOT attempt to open. Return unit to the factory for service.
- **6.** All wiring must be in accordance with local and national electrical codes.

# DynaVac GP/XP/XR/RP Series Fan Wiring Diagram





### INSTALLATION INSTRUCTION IN014 Rev E

XP101 XP151	p/n 23008-1,-2 p/n 23010-1,-2 p/n 23011-1,-2	DynaVa GP201 GP301 GP401	ac - GP Series p/n 23007-1 p/n 23006-1,-2 p/n 23009-1
XP201	p/n 23011-1,-2	GP401 GP501	p/n 23005-1,-2
XR161 XR261	p/n 23018-1,-2 p/n 23019-1,-2	GI 501	p/11/20000 1/ =

### 1.0 SYSTEM DESIGN CONSIDERATIONS

### 1.1 INTRODUCTION

The DynaVac GP/XP/XR Series Radon Fans are intended for use by trained, professional Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of a DynaVac Fan. This instruction should be considered as a supplement to EPA standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

### 1.2 ENVIRONMENTALS

The GP/XP/XR Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

### 1.3 ACOUSTICS

The GP/XP/XR Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

### 1.4 GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the GP/XP/XR Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

### 1.5 SLAB COVERAGE

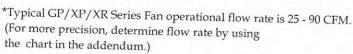
The GP/XP/XR Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the GP/XP/XR Series Fan best suited for the sub-slab material can improve the slab coverage. The GP & XP series have a wide range of models to choose from to cover a wide range of subslab material. The higher static suction fans are generally used for tighter subslab materials. The XR Series is specifically designed for high flow applications such as stone/gravel and drain tile. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

### 1.6 CONDENSATION & DRAINAGE

Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The GP/XP/XR Series Fan MUST be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The GP/XP/XR Series Fans are NOT suitable for underground burial.

For GP/XP/XR Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

Pipe	Minim	ım Rise per F	oot of Run*
Dia.	@25 CFM	@50 CFM	@100 CFM
4"	1/8"	1/4"	3/8"
3"	1/4"	3/8"	1 1/2"

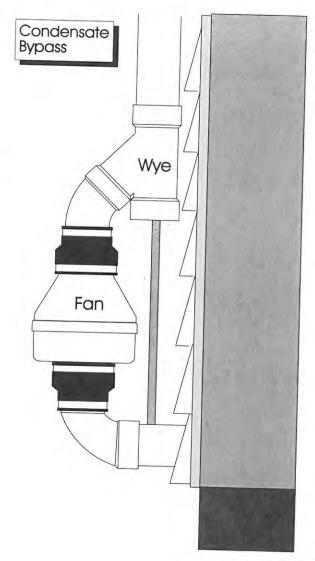


Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.

The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

### 1.7 "SYSTEM ON" INDICATOR

A properly designed system should incorporate a "System On" Indicator for affirmation of system operation. A manometer, such as a U-Tube, or a vacuum alarm is recommended for this purpose.



RISE

RUN

### 1.8 ELECTRICAL WIRING

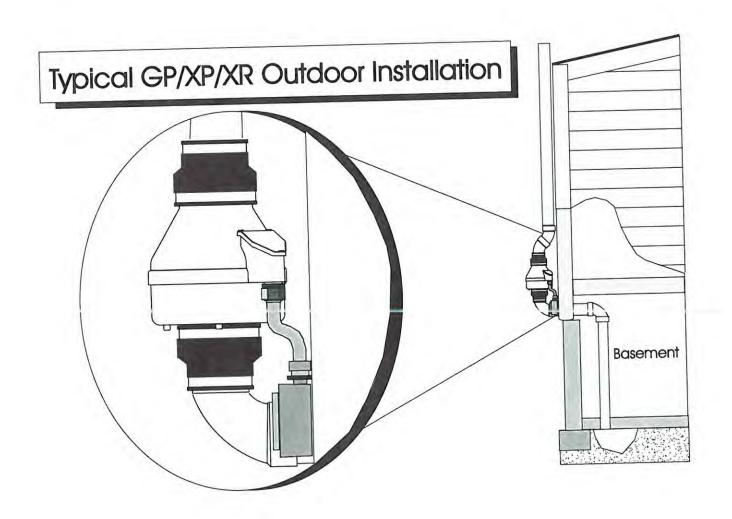
The GP/XP/XR Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Electrical Code and state and local building codes. All electrical work should be performed by a qualified electrician. Outdoor installations require the use of a U.L. listed watertight conduit.

### 1.9 SPEED CONTROLS

The GP/XP/XR Series Fans are rated for use with electronic speed controls ,however, they are generally not recommended.

### 2.0 INSTALLATION

The GP/XP/XR Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The GP/XP/XR Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket.



IN014 Rev E

### 2.1 MOUNTING

Mount the GP/XP/XR Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.

### 2.2 MOUNTING BRACKET (optional)

The GP/XP/XR Series fan may be optionally secured with the integral mounting bracket on the GP Series fan or with RadonAway P/N 25007-2 mounting bracket for an XP/XR Series fan. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

### 2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation.

### 2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections:

Fan Wire	Connection	
Green	Ground	
Black	AC Hot	
White	AC Common	

# Closet Basement

### 2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

### 2.6 OPERATION CHECKS

- \_\_\_\_\_ Verify all connections are tight and leak-free.
  - \_\_ Insure the GP/XP/XR Series Fan and all ducting is secure and vibration-free.
- Verify system vacuum pressure with manometer. Insure vacuum pressure is less than maximum recommended operating pressure

(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)
(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)
See Product Specifications. If this is exceeded, increase the number of suction points.

Verify Radon levels by testing to EPA protocol.

### XP/XR SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the XP & XR Series Fan:

			Typica	al CFM V	s Static S	uction "W	C		0.011
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
XP101	125	118	90	56	5	4.	_	1.00	12
XP151	180	162	140	117 93	78 74	46 57	10 38	20	÷
XP201 XR161	150 215	130 175	110 145	105	75	45	15	20	<u> </u>
XR261	250	215	185	150	115	80	50	20	

Ma	ximum Recommende	d Operating Pressure*
XP101	0.9" W.C.	(Sea Level Operation)**
XP151	1.3" W.C.	(Sea Level Operation)**
XP201	1.7" W.C.	(Sea Level Operation)**
XR161	1.3" W.C.	(Sea Level Operation)**
XR261	1.6" W.C.	(Sea Level Operation)**

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

Power Consumption @ 120 VAC						
XP101	40 - 49 watts					
XP151	45 - 60 watts					
XP201	45 - 66 watts					
XR161	48 - 75 watts					
XR261	65 - 105 watts					

XP Series Inlet/Outlet: 4.5" OD (4.0" PVC Sched 40 size compatible)

XR Series Inlet/Outlet: 5.875" OD

Mounting: Mount on the duct pipe or with optional mounting bracket.

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

Size: 9.5H" x 8.5" Dia. Weight: 6 lbs. (XR261 - 7 lbs)

Continuous Duty Thermally protected

Class B Insulation 3000 RPM

Residential Use Only Rated for Indoor or Outdoor use



### GP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the GPx01 Series Fan:

	1 011	Typic	al CFM V	s Static St	action "W	C	
	1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
GP501 GP401	95 93	87 82	80 60	70	57	30	5
SP301 SP201	92	77	45	38 10	12	-	0-0
31 201	82	58	5	-	-	74	2

Maximum Recommended Operating Pressure*						
GP501	3.8" W.C.	(Sea Level Operation)**				
GP401	3.0" W.C.	(Sea Level Operation)**				
GP301	2.4" W.C.	(Sea Level Operation)**				
GP201	1.8" W.C.	(Sea Level Operation)**				

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

077	Power Consumption @ 120 VAC	
GP501 GP401 GP301 GP201	70 - 140 watts 60 - 110 watts 55 - 90 watts 40 - 60 watts	

Inlet/Outlet: 3.5" OD (3.0" PVC Sched 40 size compatible)

Mounting: Fan may be mounted on the duct pipe or with integral flanges.

Weight: 12 lbs.

Size: 13H" x 12.5" x 12.5"

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

**Continuous Duty** Class B Insulation

3000 RPM

Thermally protected

Rated for Indoor or Outdoor Use

GP301C/GP501C Rated for Commercial Use



### IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GPx01/XP/XR Series Fan for shipping damage within 15 days of receipt. Notify RadonAway of any damages immediately. Radonaway is not responsible for damages incurred during shipping. However, for your benefit, Radonaway does insure shipments.

There are no user serviceable parts inside the fan. Do not attempt to open. Return unit to factory for service.

Install the GPx01/XP/XR Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.



March \_, 2017

Mr. Dallas Johnson 4034 Larkspur Dr. Dayton, Ohio 45406

Re: Operations & Maintenance Manual for Sub-Slab Ventilation System

Dear Mr. Johnson:

Enclosed please find the Operations & Maintenance Manual for the sub-slab depressurization (SSD) system that was installed at your house, located at 61/63A/63B South Ardmore Avenue, in December 2007. This user manual has been written to describe how the system works. It also outlines the procedures undertaken by Home Avenue Redevelopment, LLC and its contractors to maintain the system and verify that it continues to operate properly. For your convenience, a clear plastic folder has been provided in the back of the manual, where you can insert copies of your indoor air and soil vapor test result letters.

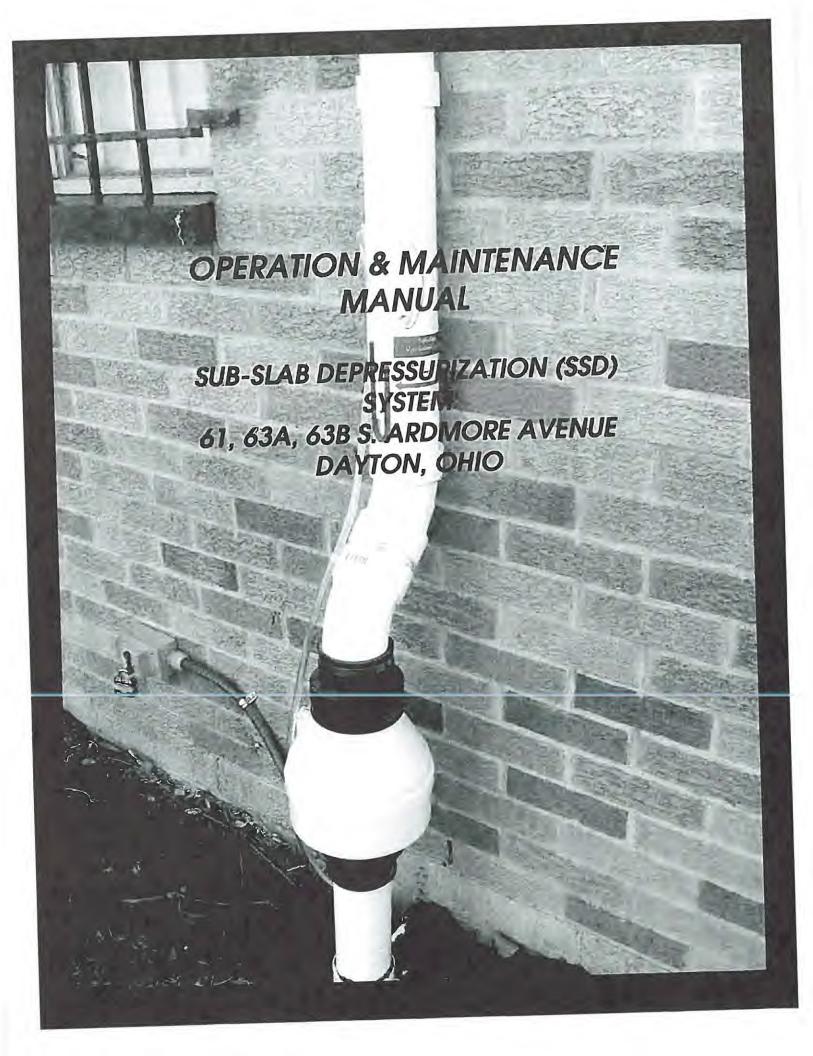
Four copies of the Operations & Maintenance Manual are being provided to you: one copy for you and one copy for each of the three rental units located at 61/63A/63B South Ardmore Avenue.

We hope you will take a few minutes to read through the Operations & Maintenance manual. In the meantime, if you have any questions about the SSD system at your house, or suspect it is not running properly, please do not hesitate to call Home Avenue Redevelopment, LLC at 614-793-8777.

Sincerely,

Bradford White Owner/Manager

cc: Joseph M. Smindak, Ohio EPA, VAP



# SUB-SLAB DEPRESSURIZATION (SSD) SYSTEM OPERATION & MAINTENANCE MANUAL

FOR: 61, 63A & 63B S. ARDMORE AVENUE DAYTON, OHIO 45417

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### 1.0 INTRODUCTION

This Operation & Maintenance (O&M) manual has been prepared to serve as a user manual for the subslab depressurization (SSD) system installed at 61, 63A, 63B S. Ardmore Avenue, Dayton, Ohio. An O&M manual for the SSDS system installed at 61, 63A, 63B S. Ardmore Avenue, Dayton, Ohio was previously provided to you by the Delphi Corporation. The O&M manual was revised for the purpose of providing you with updated background information and points of contact.

From 2007 to 2008, Delphi Corporation and U.S. Environmental Protection Agency (EPA) conducted environmental investigation activities near the former Delphi Automotive Holdings Group Home Avenue Operations, located at 2701 Home Avenue, Dayton, Ohio (Home Avenue facility). Pursuant to an Administrative Order on Consent between Delphi Corporation and the U.S. EPA, Delphi Corporation had collected soil vapor and indoor air samples in homes near the Home Ave facility. Samples were tested for the presence of trichloroethylene (TCE), tetrachloroethylene (PCE), and chloroform.

Because at least one of the chemicals listed above was found in an indoor air sample collected at this house in an amount greater than the Ohio Department of Health (ODH)-recommended indoor air screening level, and at least one of the chemicals was detected in a sub-slab soil vapor sample collected from beneath this house in an amount great than the ODH-recommended screening level for sub-slab soil vapor, a SSD system was installed in December 2007. When operating properly, the SSD system reduces or prevents sub-slab soil vapors from entering the house.

SSD systems are a proven, effective and economical means for intercepting subsurface soil vapors that might otherwise infiltrate into a structure. These systems have been successfully installed and operated in residential structures at locations throughout the United States.

The Home Avenue facility ceased operations in 2008. DPH Holdings Corp. submitted a request to enter the Home Avenue facility property into the Voluntary Action Program administered by Ohio Environmental Protection Agency (Ohio EPA). The Voluntary Action Program establishes rules for environmental assessment and remediation.

Home Avenue Redevelopment, LLC (HAR) purchased the Home Avenue facility and assumed responsibility for completing the voluntary action that was underway. The City of Dayton and HAR are co-Volunteers in the process. O&M of the SSD system is required by the Voluntary Action Program.

SSD System O&M Manual 61, 63A, 63B S. Ardmore Avenue Dayton, Ohio

The SSD system at this location was installed in accordance with the Access Agreement signed between Delphi Corporation and the owner of the property at that time. The access agreement was updated in 2013 to include the current owner of the Home Avenue facility and the current home owner (or tenant). A proposed revision to the access agreement is included in Appendix A.

In accordance with the Access Agreement, the performance of the SSD system is routinely monitored, fulfilling requirements originally established under U.S. EPA, and superseded by requirements established in an Operations and Maintenance Agreement between Ohio EPA and the Volunteers, as described in the Operations and Maintenance Plan (O&M Plan). Performance monitoring includes inspection of the SSD system and its components, and collection of soil vapor and indoor air samples for laboratory analysis as specified in the O&M Plan. The anticipated schedule for performance monitoring at this location is described in Section 4 of this manual. Performance monitoring will be performed until such time as it is determined by HAR and Ohio EPA VAP that operation, maintenance and monitoring of the SSD system is no longer required.

The previous owner of the Home Avenue Facility and HAR have taken steps to remove historic sources of soil vapor from the Home Avenue facility, which have included operating a soil vapor extraction (SVE) remediation system and conducting mass soil excavation.

### 2.0 SYSTEM DESCRIPTION

At the time of installation, Delphi Corporation contracted A-Z Radon Services, a certified radon mitigation contractor licensed by the State of Ohio Department of Health and experienced in installation of SSD systems for vapor removal at residential locations, to design and install the SSD system at this address. The SSD system design for this house was initially approved the by U.S. EPA and subsequently incorporated as a remedial action in the voluntary action, by agreement with Ohio EPA.

An SSD system operates by creating a lower air pressure beneath the slab of this house relative to the air pressure inside. The reduced sub-slab air pressure, or vacuum, is created by operation of an electrically powered fan that draws air from beneath the slab and exhausts it through piping installed along the side of the house extending above the roofline.

The SSD system installed at this location consists of the following components:

- One suction point installed through the concrete slab in each of the three rental units in the structure;
- One Radon Away<sup>TM</sup> model XP201 fan assembly installed on the outside of each of the three rental units in the structure;
- PVC piping installed on the exterior of each of the three rental units in the structure;
- One fan disconnect switch, locked by padlock, installed on the exterior of each of the three rental units in the structure.

A diagram and photographs of the SSD system installed at this house are presented in Appendix B. Manufacturer specifications, instructions for operation and warranties for the fan assembly are presented in Appendix C.

#### 3.0 OPERATION AND MAINTENANCE

#### 3.1 Operation

The SSD system creates a vacuum to change the path of soil vapor from entering your house through the foundation slab to be vented outside, above the roof. To ensure the SSD system is actively preventing soil vapors from entering the structure, it is necessary that it remain operation at all times. It is recommended that you check the system on a regular basis to ensure it is operation properly. In addition, HAR and/or its contractor is required to check the system each time indoor air and sub-slab soil vapor samples are collected, as described in Section 4 of this manual.

The SSD system installed at this location is connected to the home's electrical power supply. The SSD system fan has been installed with a disconnect switch enclosed in a locked box to prevent unauthorized access or accidental shut-off. You have been provided a key for the padlock so that the disconnect switch can be accessed if necessary. A manometer, or "U-tube" (Appendix B, Photo 2), is installed above the fan assembly on the exhaust pipe mounted to the exterior of the building, and provides visual verification that negative pressure is being maintained beneath the structure. You should perform the following monthly to verify that the SSD system is operating properly:

- Visually inspect the SSD system and piping to look for signs of damage.
- Visually inspect the U-tube to confirm that a vacuum is maintained- liquid levels in the tubes should not be even with each other (i.e. one side should be higher than the other).
- Verify that the exhaust point remains unobstructed- obstructions could prevent discharge of air to the atmosphere.
- Listen to the fan assembly to verify it is operating- you should be able to hear a low humming noise and or the rush of air out of the fan into the exhaust piping.

If at any time the SSD system does not appear to be running, check the power supply in the house to verify there has not been a power outage. If a power outage has not occurred, check the padlocked disconnect switch to determine whether someone has turned it off. Turn the switch to the "on" position and check the SSD system to confirm that its operation has been restored. If still not operating, check the electrical panel to see if the breaker for the SSD system has tripped. If the break is in the "off" position, reset the breaker to the "on" position. If the problem persists, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

#### 3.2 Maintenance

Maintenance, alteration and repair of the SSD system will be performed, as necessary, by HAR contractors. Performance of such activities by anyone other than HAR's contractors could result in damage to the SSD system and reduction of its effectiveness. Furthermore, alteration of attempted repair by others may result in voiding the manufacturer's warranties.

As stated in Section 3.1 of this manual, if you observe that the SSD system is damaged and/or not operating properly, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

If during a scheduled sampling and inspection event (described in Section 4 of this manual), HAR's representatives determine that repair or maintenance of the system is necessary, HAR will arrange for service to the SSD system as soon as possible.

#### 4.0 MONITORING

By signing the Access Agreement in Appendix A, you have granted HAR and its representatives permission to collect soil vapor and indoor air samples at this location to verify that the SSD system is working properly.

Pursuant to Ohio EPA's requirements, annual inspections, system vacuum/pressure will be monitored, the system fans/blower will be checked for operation, several components (including system piping and seals) will be visually inspected, and system operation by the resident will be confirmed. Sampling of the subslab vapor and indoor air may be conducting during the annual inspection (refer to Section 5.0 of the February 2017, O&M Plan¹ for the random selection process) until the SSD system is no longer required.

The sub-slab vapor and indoor air samples collected at this location will be sent to a laboratory certified to perform analysis of such samples. These activities will be performed at no cost to the owner or occupants of this structure.

The results of the laboratory testing will be presented to the owner of this property, and shared with environmental agencies such as the Ohio EPA, Ohio Department of Health, and other government agencies as appropriate. For your convenience, this O&M manual contains plastic organizer sleeves for storage of sampling data and other relevant information.

<sup>&</sup>lt;sup>1</sup> Hull & Associates, Inc., 2017. Operation and Maintenance Plan for the Dayton Aviation Heritage Redevelopment Property. Hull Document No. HME001.300.0075, February 2017.

#### 5.0 CONTACT INFORMATION

HAR appreciates your continued cooperation concerning SSD system operation, maintenance and performance monitoring at this location. Should you have any questions concerning the environmental sampling performed at this location, please contact one of the following parties:

HAR — Bradford White — 614-7903-8777

Ohio EPA Southwest District Office — Voluntary Action Program Site Coordinator — 937-285-6064

In the event the SSD system is not operating properly, please contact HAR at 614-793-8777 to report the trouble.

#### APPENDIX A

Access Agreement

# HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

This Agreement is made between <u>Dallas Johnson</u>, whose mailing address is <u>4034 Larkspur Drive</u>, <u>Dayton</u>, <u>Ohio 45406</u>, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at 61 S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- 2. For purposes of providing note under this Agreement, the contact person for the Owner is phone number \_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
- 10. HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
- This Agreement is intended to be and shall be construed as a grant of temporary right of access and not an interest in the Property.

- 12. The results of testing performed at the house will be provided to the Owner as soon as possible.

  Results will also be shared with environmental agencies such as the Ohio EPA, Ohio Department Health and other government agencies as appropriate. Owner agrees that HAR and its representatives may contact Owner's tenant to coordinate sampling.
- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
- This Agreement is governed by Ohio law.
- 15. This Agreement shall be effective on the first date it is fully executed and expires whenever the environmental testing, recovery and/or treatment system is no longer required as determined by the Ohio EPA or HAR.
- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER	
Name (Si	gnature and Print)
Date	
HOME A	VENUE REDEVELOPMENT, LLC
Name (S	ignature and Print)
Title	
Date	

# HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

This Agreement is made between <u>Dallas Johnson</u>, whose mailing address is <u>4034 Larkspur Drive</u>, <u>Dayton</u>, <u>Ohio 45406</u>, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at 63A S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- 2. For purposes of providing note under this Agreement, the contact person for the Owner is phone number \_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
- 10. HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
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- 16. If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER	
Name (S	signature and Print)
Date	
HOME	AVENUE REDEVELOPMENT, LLC
Name (	Signature and Print)
Title	

## HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

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- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at 63B S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
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OWNER	
Name (Signatu	ure and Print)
Date	
HOME AVEN	UE REDEVELOPMENT, LLC
Name (Signat	ure and Print)
Title	
Date	

#### APPENDIX B

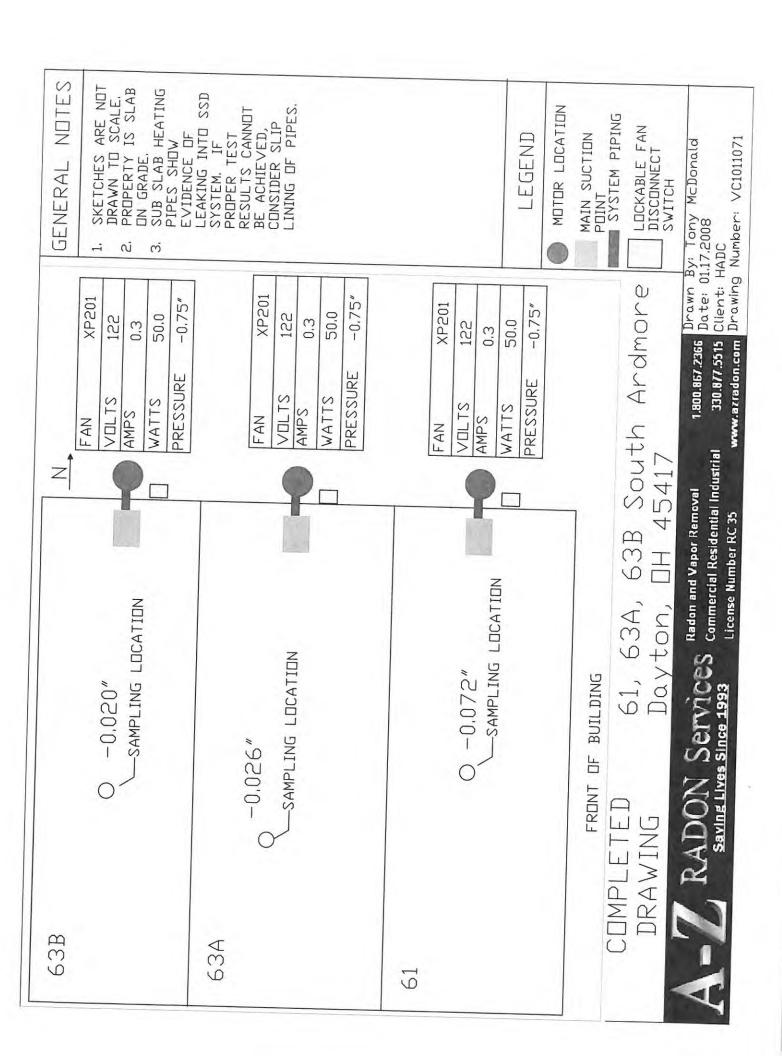
SSD System Diagram and Photos



Photo 1: SSD System installation at 61, 63A, 63B S. Ardmore Avenue, Dayton, Ohio



Photo 2: Manometer ("U-tube") on SSD system installed at 61, 63A, 63B S. Ardmore Avenue, Dayton, Ohio



#### APPENDIX C

Manufacturer's Instructions, Specifications and Warranties



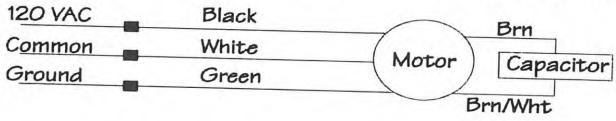
# XP/GP/XR Series Fan Installation Instructions

# Please Read And Save These Instructions.

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

- **1. WARNING!** Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible of flammable materials.
- 2. WARNING! Do not use fan to pump explosive or corrosive gases.
- 3. WARNING! Check voltage at the fan to insure it corresponds with nameplate.
- **4. WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
- NOTICE! There are no user serviceable parts located inside the fan unit. Do NOT attempt to open. Return unit to the factory for service.
- **6.** All wiring must be in accordance with local and national electrical codes.

# DynaVac GP/XP/XR/RP Series Fan Wiring Diagram





#### **INSTALLATION INSTRUCTION IN014 Rev E**

	ac - XP/XR Series		p/n 23007-1
XP101 XP151 XP201	p/n 23008-1,-2 p/n 23010-1,-2 p/n 23011-1,-2	GP201 GP301 GP401	p/n 23006-1,-2 p/n 23009-1
XR161 XR261	p/n 23018-1,-2 p/n 23019-1,-2	GP501	p/n 23005-1,-2

#### 1.0 SYSTEM DESIGN CONSIDERATIONS

#### 1.1 INTRODUCTION

The DynaVac GP/XP/XR Series Radon Fans are intended for use by trained, professional Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of a DynaVac Fan. This instruction should be considered as a supplement to EPA standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

#### 1.2 ENVIRONMENTALS

The GP/XP/XR Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

#### 1.3 ACOUSTICS

The GP/XP/XR Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

#### 1.4 GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the GP/XP/XR Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

#### 1.5 SLAB COVERAGE

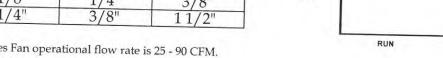
The GP/XP/XR Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the GP/XP/XR Series Fan best suited for the sub-slab material can improve the slab coverage. The GP & XP series have a wide range of models to choose from to cover a wide range of subslab material. The higher static suction fans are generally used for tighter subslab materials. The XR Series is specifically designed for high flow applications such as stone/gravel and drain tile. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

#### 1.6 CONDENSATION & DRAINAGE

Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The GP/XP/XR Series Fan MUST be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The GP/XP/XR Series Fans are NOT suitable for underground burial.

For GP/XP/XR Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

Pipe	Minimu	ım Rise per F	oot of Run*
Dia.	@25 CFM	@50 CFM	@100 CFM
4"	1/8"	1/4"	3/8"
3"	1/4"	3/8"	11/2"



RISE

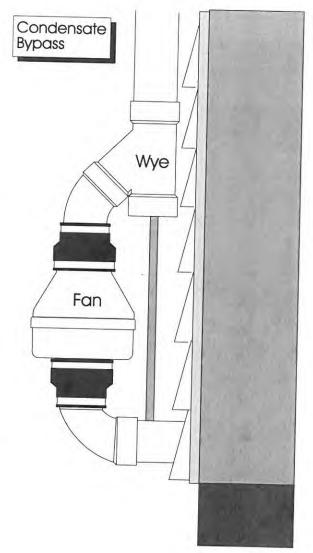
\*Typical GP/XP/XR Series Fan operational flow rate is 25 - 90 CFM. (For more precision, determine flow rate by using the chart in the addendum.)

Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.

The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

#### 1.7 "SYSTEM ON" INDICATOR

A properly designed system should incorporate a "System On" Indicator for affirmation of system operation. A manometer, such as a U-Tube, or a vacuum alarm is recommended for this purpose.



#### 1.8 ELECTRICAL WIRING

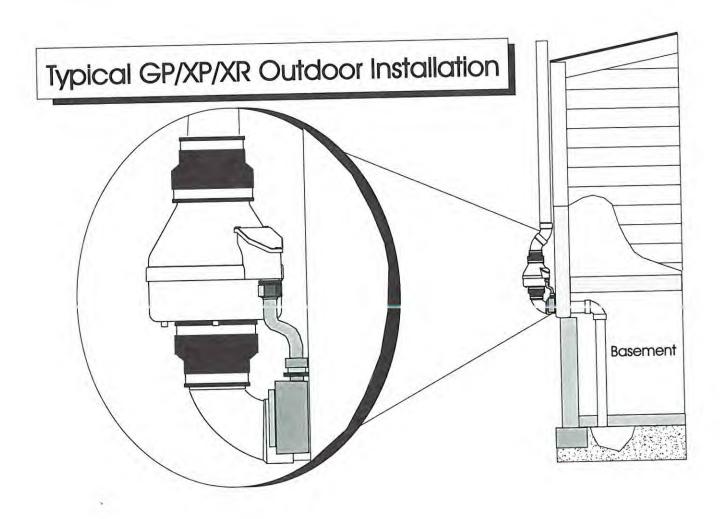
The GP/XP/XR Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Electrical Code and state and local building codes. All electrical work should be performed by a qualified electrician. Outdoor installations require the use of a U.L. listed watertight conduit.

#### 1.9 SPEED CONTROLS

The GP/XP/XR Series Fans are rated for use with electronic speed controls ,however, they are generally not recommended.

#### 2.0 INSTALLATION

The GP/XP/XR Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The GP/XP/XR Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket.



#### 2.1 MOUNTING

Mount the GP/XP/XR Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.

#### 2.2 MOUNTING BRACKET (optional)

The GP/XP/XR Series fan may be optionally secured with the integral mounting bracket on the GP Series fan or with RadonAway P/N 25007-2 mounting bracket for an XP/XR Series fan. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

#### 2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation.

#### 2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections:

Fan Wire	Connection
Green	Ground
Black	AC Hot
White	AC Common

# Closet

#### 2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

#### 2.6 OPERATION CHECKS

- \_\_\_\_\_ Verify all connections are tight and leak-free.
  - \_\_\_\_ Insure the GP/XP/XR Series Fan and all ducting is secure and vibration-free.
- Verify system vacuum pressure with manometer. Insure vacuum pressure is less than maximum recommended operating pressure

(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.) (Further reduce Maximum Operating Pressure by 10% for High Temperature environments)

See Product Specifications. If this is exceeded, increase the number of suction points.

\_ Verify Radon levels by testing to EPA protocol.

#### XP/XR SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the XP & XR Series Fan:

	-		Typica	I CFM V	s Static St	action "W	C	4	0.01
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
XP101	125	118	90	56	5 78	46	- 10	-	4
(P151 (P201	180 150	162 130	140 110	117 93	74	57	38 15	20	P <del>-</del>
XR161 XR261	215 250	175 215	145 185	105 150	75 115	45 80	50	20	3,7 =

Maximum Recom	mended Operating Pressure*
XP101 0.9" W.C.	(Sea Level Operation)**
XP151 1.3" W.C.	(Sea Level Operation)**
XP201 1.7" W.C.	(Sea Level Operation)**
XR161 1.3" W.C.	(Sea Level Operation)**
XR261 1.6" W.C.	(Sea Level Operation)**

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

	Power Consumption @ 120 VAC	
XP101	40 - 49 watts	
XP151	45 - 60 watts	
XP201	45 - 66 watts 48 - 75 watts	
XR161	65 - 105 watts	
XR261	00 - 105 Watts	

XP Series Inlet/Outlet: 4.5" OD (4.0" PVC Sched 40 size compatible)

XR Series Inlet/Outlet: 5.875" OD

Mounting: Mount on the duct pipe or with optional mounting bracket.

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

**Size**: 9.5H" x 8.5" Dia.

Weight: 6 lbs. (XR261 - 7 lbs)

Continuous Duty Thermally protected

Class B Insulation 3000 RPM

Residential Use Only Rated for Indoor or Outdoor use



#### GP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the GPx01 Series Fan:

	4 44	Typic	al CFM V	s Static Si	uction "W	IC.	
	1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
GP501 GP401	95 93	87 82	80	70	57	30	5
GP301 GP201	92	77	60 45	38 10	12	-	-
GI 201	82	58	5	-	4	ž.	_

Maximum Recommended Operating Pressure*					
GP501	3.8" W.C.	(Sea Level Operation)**			
GP401	3.0" W.C.	(Sea Level Operation)**			
GP301	2.4" W.C.	(Sea Level Operation)**			
GP201	1.8" W.C.	(Sea Level Operation)**			

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

	Power Consumption @ 120 VAC	
GP501 GP401 GP301 GP201	70 - 140 watts 60 - 110 watts 55 - 90 watts 40 - 60 watts	

Inlet/Outlet: 3.5" OD (3.0" PVC Sched 40 size compatible)

Mounting: Fan may be mounted on the duct pipe or with integral flanges.

Weight: 12 lbs.

**Size**: 13H" x 12.5" x 12.5"

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

Continuous Duty Class B Insulation

3000 RPM

Thermally protected

Rated for Indoor or Outdoor Use

GP301C/GP501C Rated for Commercial Use



#### IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GPx01/XP/XR Series Fan for shipping damage within 15 days of receipt. Notify RadonAway of any damages immediately. Radonaway is not responsible for damages incurred during shipping. However, for your benefit, Radonaway does insure shipments.

There are no user serviceable parts inside the fan. Do not attempt to open. Return unit to factory for service.

Install the GPx01/XP/XR Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.



March \_, 2017

Ms. Helen Owensby 75 S. Ardmore Ave. Dayton, Ohio 45402

Re: Operations & Maintenance Manual for Sub-Slab Ventilation System at 75 S. Ardmore Avenue

Dear Ms. Owensby:

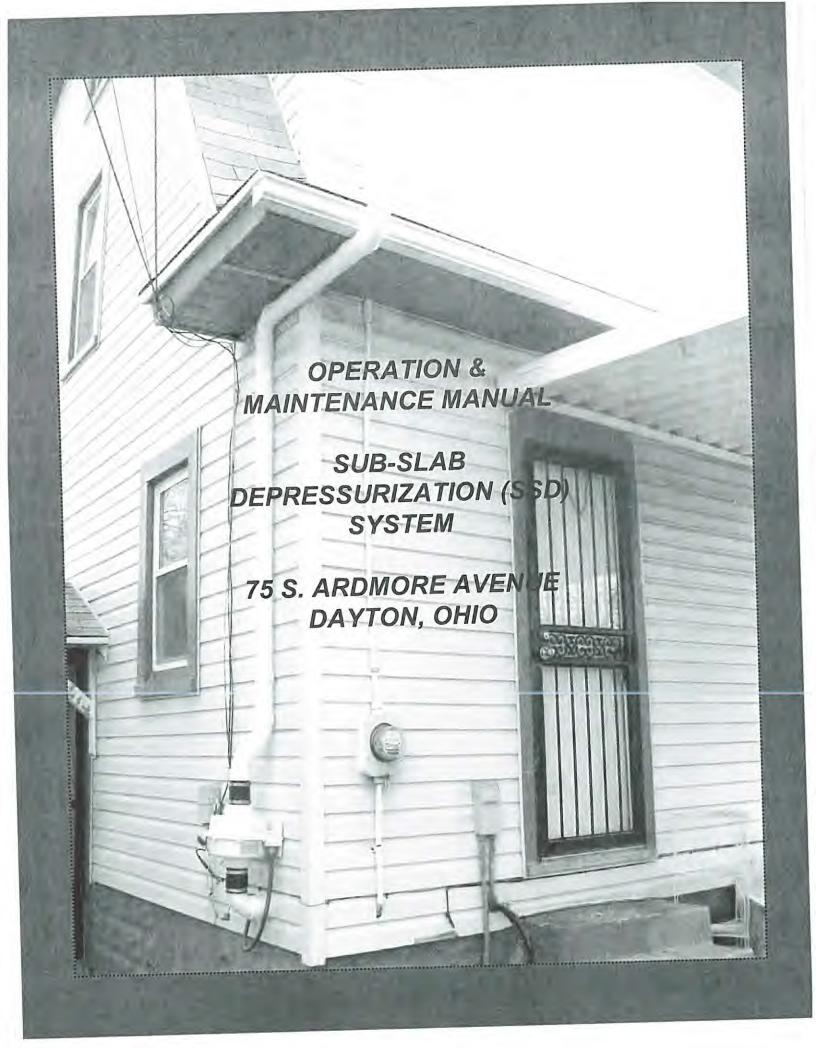
Enclosed please find the Operations & Maintenance Manual for the sub-slab depressurization (SSD) system that was installed at your house, located at 75 South Ardmore Avenue, in December 2007. This user manual has been written to describe how the system works. It also outlines the procedures undertaken by Home Avenue Redevelopment, LLC and its contractors to maintain the system and verify that it continues to operate properly. For your convenience, a clear plastic folder has been provided in the back of the manual, where you can insert copies of your indoor air and soil vapor test results.

We hope you will take a few minutes to read through the Operations & Maintenance manual. In the meantime, if you have any questions about the SSD system at your house, or suspect it is not running properly, please do not hesitate to call Home Avenue Redevelopment, LLC at 614-793-8777.

Sincerely,

Bradford White Owner/Manager

cc: Joseph M. Smindak, Ohio EPA, VAP



# SUB-SLAB DEPRESSURIZATION (SSD) SYSTEM OPERATION & MAINTENANCE MANUAL

FOR: 75 S. ARDMORE AVENUE DAYTON, OHIO 45417

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#### 1.0 INTRODUCTION

This Operation & Maintenance (O&M) manual has been prepared to serve as a user manual for the subslab depressurization (SSD) system installed at 75 S. Ardmore Avenue, Dayton, Ohio. An O&M manual for the SSDS system installed at 75 S. Ardmore Avenue, Dayton, Ohio was previously provided to you by the Delphi Corporation. The O&M manual was revised for the purpose of providing you with updated background information and points of contact.

From 2007 to 2008, Delphi Corporation and U.S. Environmental Protection Agency (EPA) conducted environmental investigation activities near the former Delphi Automotive Holdings Group Home Avenue Operations, located at 2701 Home Avenue, Dayton, Ohio (Home Avenue facility). Pursuant to an Administrative Order on Consent between Delphi Corporation and the U.S. EPA, Delphi Corporation had collected soil vapor and indoor air samples in homes near the Home Ave facility. Samples were tested for the presence of trichloroethylene (TCE), tetrachloroethylene (PCE), and chloroform.

Because at least one of the chemicals listed above was found in an indoor air sample collected at this house in an amount greater than the Ohio Department of Health (ODH)-recommended indoor air screening level, and at least one of the chemicals was detected in a sub-slab soil vapor sample collected from beneath this house in an amount great than the ODH-recommended screening level for sub-slab soil vapor, a SSD system was installed in December 2007. When operating properly, the SSD system reduces or prevents sub-slab soil vapors from entering the house.

SSD systems are a proven, effective and economical means for intercepting subsurface soil vapors that might otherwise infiltrate into a structure. These systems have been successfully installed and operated in residential structures at locations throughout the United States.

The Home Avenue facility ceased operations in 2008. DPH Holdings Corp. submitted a request to enter the Home Avenue facility property into the Voluntary Action Program administered by Ohio Environmental Protection Agency (Ohio EPA). The Voluntary Action Program establishes rules for environmental assessment and remediation.

Home Avenue Redevelopment, LLC (HAR) purchased the Home Avenue facility and assumed responsibility for completing the voluntary action that was underway. The City of Dayton and HAR are co-Volunteers in the process. O&M of the SSD system is required by the Voluntary Action Program.

The SSD system at this location was installed in accordance with the Access Agreement signed between Delphi Corporation and the owner of the property at that time. The access agreement was updated in 2013 to include the current owner of the Home Avenue facility and the current home owner (or tenant). A proposed revision to the access agreement is included in Appendix A.

In accordance with the Access Agreement, the performance of the SSD system is routinely monitored, fulfilling requirements originally established under U.S. EPA, and superseded by requirements established in an Operations and Maintenance Agreement between Ohio EPA and the Volunteers, as described in the Operations and Maintenance Plan (O&M Plan). Performance monitoring includes inspection of the SSD system and its components, and collection of soil vapor and indoor air samples for laboratory analysis as specified in the O&M Plan. The anticipated schedule for performance monitoring at this location is described in Section 4 of this manual. Performance monitoring will be performed until such time as it is determined by HAR and Ohio EPA VAP that operation, maintenance and monitoring of the SSD system is no longer required.

The previous owner of the Home Avenue Facility and HAR have taken steps to remove historic sources of soil vapor from the Home Avenue facility, which have included operating a soil vapor extraction (SVE) remediation system and conducting mass soil excavation.

#### 2.0 SYSTEM DESCRIPTION

At the time of installation, Delphi Corporation contracted A-Z Radon Services, a certified radon mitigation contractor licensed by the State of Ohio Department of Health and experienced in installation of SSD systems for vapor removal at residential locations, to design and install the SSD system at this address. The SSD system design for this house was initially approved the by U.S. EPA and subsequently incorporated as a remedial action in the voluntary action, by agreement with Ohio EPA.

An SSD system operates by creating a lower air pressure beneath the slab of this house relative to the air pressure inside. The reduced sub-slab air pressure, or vacuum, is created by operation of an electrically powered fan that draws air from beneath the slab and exhausts it through piping installed along the side of the house extending above the roofline.

The SSD system installed at this location consists of the following components:

- Two suction points installed through the basement floor;
- One Radon Away<sup>TM</sup> model XP201 fan assembly installed on the outside of each of the houses;
- PVC piping installed on the exterior of the house; and
- One fan disconnect switch, locked by padlock, installed on the exterior of the house.

A diagram and photographs of the SSD system installed at this house are presented in Appendix B. Manufacturer specifications, instructions for operation and warranties for the fan assembly are presented in Appendix C.

#### 3.0 OPERATION AND MAINTENANCE

#### 3.1 Operation

The SSD system creates a vacuum to change the path of soil vapor from entering your house through the foundation slab to be vented outside, above the roof. To ensure the SSD system is actively preventing soil vapors from entering the structure, it is necessary that it remain operation at all times. It is recommended that you check the system on a regular basis to ensure it is operation properly. In addition, HAR and/or its contractor is required to check the system each time indoor air and sub-slab soil vapor samples are collected, as described in Section 4 of this manual.

The SSD system installed at this location is connected to the home's electrical power supply. The SSD system fan has been installed with a disconnect switch enclosed in a locked box to prevent unauthorized access or accidental shut-off. You have been provided a key for the padlock so that the disconnect switch can be accessed if necessary. A manometer, or "U-tube" (Appendix B, Photo 2), is installed above the fan assembly on the exhaust pipe mounted to the exterior of the building, and provides visual verification that negative pressure is being maintained beneath the structure. You should perform the following monthly to verify that the SSD system is operating properly:

- Visually inspect the SSD system and piping to look for signs of damage.
- Visually inspect the U-tube to confirm that a vacuum is maintained- liquid levels in the tubes should not be even with each other (i.e. one side should be higher than the other).
- Verify that the exhaust point remains unobstructed- obstructions could prevent discharge of air to the atmosphere.
- Listen to the fan assembly to verify it is operating- you should be able to hear a low humming noise and or the rush of air out of the fan into the exhaust piping.

If at any time the SSD system does not appear to be running, check the power supply in the house to verify there has not been a power outage. If a power outage has not occurred, check the padlocked disconnect switch to determine whether someone has turned it off. Turn the switch to the "on" position and check the SSD system to confirm that its operation has been restored. If still not operating, check the electrical panel to see if the breaker for the SSD system has tripped. If the break is in the "off" position, reset the breaker to the "on" position. If the problem persists, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

#### 3.2 Maintenance

Maintenance, alteration and repair of the SSD system will be performed, as necessary, by HAR contractors. Performance of such activities by anyone other than HAR's contractors could result in damage to the SSD system and reduction of its effectiveness. Furthermore, alteration of attempted repair by others may result in voiding the manufacturer's warranties.

As stated in Section 3.1 of this manual, if you observe that the SSD system is damaged and/or not operating properly, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

If during a scheduled sampling and inspection event (described in Section 4 of this manual), HAR's representatives determine that repair or maintenance of the system is necessary, HAR will arrange for service to the SSD system as soon as possible.

#### 4.0 MONITORING

By signing the Access Agreement in Appendix A, you have granted HAR and its representatives permission to collect soil vapor and indoor air samples at this location to verify that the SSD system is working properly.

Pursuant to Ohio EPA's requirements, annual inspections, system vacuum/pressure will be monitored, the system fans/blower will be checked for operation, several components (including system piping and seals) will be visually inspected, and system operation by the resident will be confirmed. Sampling of the subslab vapor and indoor air may be conducting during the annual inspection (refer to Section 5.0 of the February 2017, O&M Plan¹ for the random selection process) until the SSD system is no longer required.

The sub-slab vapor and indoor air samples collected at this location will be sent to a laboratory certified to perform analysis of such samples. These activities will be performed at no cost to the owner or occupants of this structure.

The results of the laboratory testing will be presented to the owner of this property, and shared with environmental agencies such as the Ohio EPA, Ohio Department of Health, and other government agencies as appropriate. For your convenience, this O&M manual contains plastic organizer sleeves for storage of sampling data and other relevant information.

<sup>&</sup>lt;sup>1</sup> Hull & Associates, Inc., 2017. Operation and Maintenance Plan for the Dayton Aviation Heritage Redevelopment Property. Hull Document No. HME001.300.0075, February 2017.

#### 5.0 CONTACT INFORMATION

HAR appreciates your continued cooperation concerning SSD system operation, maintenance and performance monitoring at this location. Should you have any questions concerning the environmental sampling performed at this location, please contact one of the following parties:

HAR – Bradford White – 614-7903-8777

Ohio EPA Southwest District Office – Voluntary Action Program Site Coordinator – 937-285-6064

In the event the SSD system is not operating properly, please contact HAR at 614-793-8777 to report the trouble.

#### APPENDIX A

Access Agreement

### HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

This Agreement is made between <u>Helen Owensby</u>, whose mailing address is <u>75 S. Ardmore Avenue, Dayton</u>, <u>Ohio 45417</u>, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>75 S. Ardmore Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- For purposes of providing note under this Agreement, the contact person for the Owner is
   —, phone number \_\_\_\_\_\_. The contact person for HAR is Brad White,
  phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
- 10. HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
- 11. This Agreement is intended to be and shall be construed as a grant of temporary right of access and not an interest in the Property.

- 12. The results of testing performed at the house will be provided to the Owner as soon as possible.

  Results will also be shared with environmental agencies such as the Ohio EPA, Ohio Department Health and other government agencies as appropriate. Owner agrees that HAR and its representatives may contact Owner's tenant to coordinate sampling.
- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
- 14. This Agreement is governed by Ohio law.
- 15. This Agreement shall be effective on the first date it is fully executed and expires whenever the environmental testing, recovery and/or treatment system is no longer required as determined by the Ohio EPA or HAR.
- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER	
Name (Si	gnature and Print)
Date	
HOME A	VENUE REDEVELOPMENT, LLC
Name (S	ignature and Print)
Title	
Date	

#### APPENDIX B

SSD System Diagram and Photos

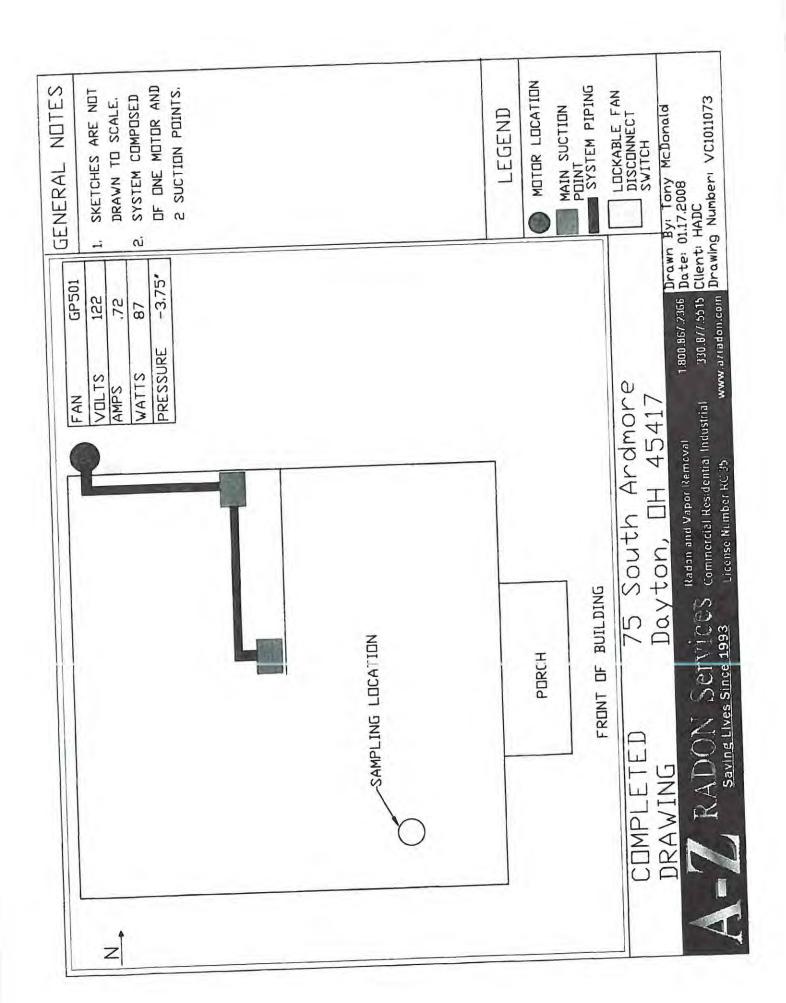




Photo 1: SSD System installation at 75 S. Ardmore Avenue

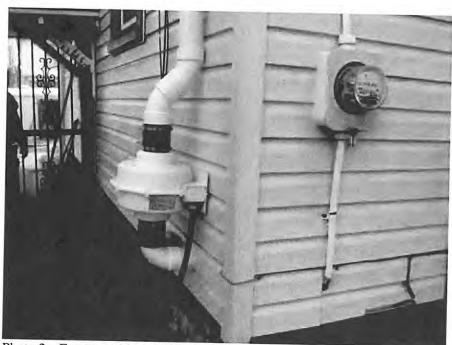


Photo 2: Fan assembly at 75 S. Ardmore Avenue



Photo 3: SSD System suction point in basement of 75 S. Ardmore Avenue



Photo 4: Manometer ("U-tube") on SSD system installed at 75 S. Ardmore Avenue

#### APPENDIX C

Manufacturer's Instructions, Specifications and Warranties



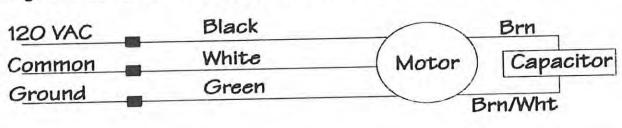
# RadonAway Ward Hill, MA IN014 Rev E XP/GP/XR Series Fan Installation Instructions

# Please Read And Save These Instructions.

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

- WARNING! Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible of flammable materials.
- 2. WARNING! Do not use fan to pump explosive or corrosive gases.
- 3. WARNING! Check voltage at the fan to insure it corresponds with nameplate.
- 4. WARNING! Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
- NOTICE! There are no user serviceable parts located inside the fan unit.Do NOT attempt to open. Return unit to the factory for service.
- 6. All wiring must be in accordance with local and national electrical codes.

# DynaVac GP/XP/XR/RP Series Fan Wiring Diagram



Page 1 of 8



#### **INSTALLATION INSTRUCTION IN014 Rev E**

XP101 XP151 XP201	ac - XP/XR Series p/n 23008-1,-2 p/n 23010-1,-2 p/n 23011-1,-2	GP201 GP301 GP401	ac - GP Series p/n 23007-1 p/n 23006-1,-2 p/n 23009-1
XR161 XR261	p/n 23011-1,-2 p/n 23018-1,-2 p/n 23019-1,-2	GP401 GP501	p/n 23009-1 p/n 23005-1,-2

#### 1.0 SYSTEM DESIGN CONSIDERATIONS

#### 1.1 INTRODUCTION

The DynaVac GP/XP/XR Series Radon Fans are intended for use by trained, professional Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of a DynaVac Fan. This instruction should be considered as a supplement to EPA standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

#### 1.2 ENVIRONMENTALS

The GP/XP/XR Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

#### 1.3 ACOUSTICS

The GP/XP/XR Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

#### 1.4 GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the GP/XP/XR Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

#### 1.5 SLAB COVERAGE

The GP/XP/XR Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the GP/XP/XR Series Fan best suited for the sub-slab material can improve the slab coverage. The GP & XP series have a wide range of models to choose from to cover a wide range of subslab material. The higher static suction fans are generally used for tighter subslab materials. The XR Series is specifically designed for high flow applications such as stone/gravel and drain tile. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

#### 1.6 CONDENSATION & DRAINAGE

Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The GP/XP/XR Series Fan MUST be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The GP/XP/XR Series Fans are NOT suitable for underground burial.

For GP/XP/XR Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

Pipe	Minimu	ım Rise per Fo	oot of Run*
Dia.	@25 CFM	@50 CFM	@100 CFM
4"	1/8"	1/4"	3/8"
3"	1/4"	3/8"	1 1/2"

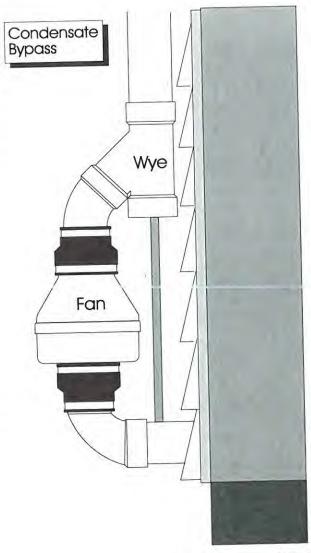


Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.

The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

#### 1.7 "SYSTEM ON" INDICATOR

A properly designed system should incorporate a "System On" Indicator for affirmation of system operation. A manometer, such as a U-Tube, or a vacuum alarm is recommended for this purpose.



<sup>\*</sup>Typical GP/XP/XR Series Fan operational flow rate is 25 - 90 CFM. (For more precision, determine flow rate by using the chart in the addendum.)

#### 1.8 ELECTRICAL WIRING

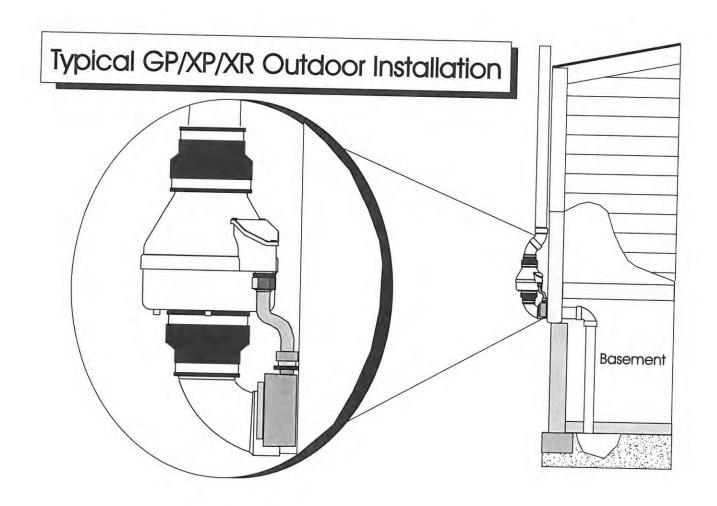
The GP/XP/XR Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Electrical Code and state and local building codes. All electrical work should be performed by a qualified electrician. Outdoor installations require the use of a U.L. listed watertight conduit.

#### 1.9 SPEED CONTROLS

The GP/XP/XR Series Fans are rated for use with electronic speed controls ,however, they are generally not recommended.

#### 2.0 INSTALLATION

The GP/XP/XR Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The GP/XP/XR Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket.



#### 2.1 MOUNTING

Mount the GP/XP/XR Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.

#### 2.2 MOUNTING BRACKET (optional)

The GP/XP/XR Series fan may be optionally secured with the integral mounting bracket on the GP Series fan or with RadonAway P/N 25007-2 mounting bracket for an XP/XR Series fan. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

#### 2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation.

#### 2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections:

Fan Wire	Connection
Green	Ground
Black	AC Hot
White	AC Common

# Closet

#### 2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

#### 2.6 OPERATION CHECKS

	Verify	all connections are	tight an	d leak-free.
--	--------	---------------------	----------	--------------

\_ Insure the GP/XP/XR Series Fan and all ducting is secure and vibration-free.

Verify system vacuum pressure with manometer. Insure vacuum pressure is less than maximum recommended operating pressure

(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)
(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)
See Product Specifications. If this is exceeded, increase the number of suction points.

Verify Radon levels by testing to EPA protocol.

#### XP/XR SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the XP & XR Series Fan:

	011	122.	Typic	al CFM V	s Static S	uction "W	C		
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
XP101 XP151	125 180	118 162	90 140	56	5		-		-
XP201	150	130	110	117 93	78 74	46 57	10 38	20	
XR161 XR261	215 250	175 215	145 185	105 150	75 115	45 80	15 50	20	11.

	Maximum Recommende	ed Operating Pressure*
XP101 XP151 XP201 XR161 XR261	0.9" W.C. 1.3" W.C. 1.7" W.C. 1.3" W.C. 1.6" W.C.	(Sea Level Operation)**

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

	Power Consumption @ 120 VAC	
XP101 XP151 XP201 XR161 XR261	40 - 49 watts 45 - 60 watts 45 - 66 watts 48 - 75 watts 65 - 105 watts	

XP Series Inlet/Outlet: 4.5" OD (4.0" PVC Sched 40 size compatible)

XR Series Inlet/Outlet: 5.875" OD

Mounting: Mount on the duct pipe or with optional mounting bracket.

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

Size: 9.5H" x 8.5" Dia.

Weight: 6 lbs. (XR261 - 7 lbs) Continuous Duty Thermally protected

Class B Insulation 3000 RPM

Residential Use Only Rated for Indoor or Outdoor use



#### GP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the GPx01 Series Fan:

		Typica	al CFM V	s Static St	action "W	C	
	1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
CDE01	95	87	80	70	57	30	5
GP501 GP401	93	82	60	38	12	-	-
GP301	92	77	45	10	-	-	-
GP201	82	58	5		16		-

	Maximum Recommende	d Operating Pressure*
GP501	3.8" W.C.	(Sea Level Operation)**
GP401	3.0" W.C.	(Sea Level Operation)**
GP301	2.4" W.C.	(Sea Level Operation)**
GP201	1.8" W.C.	(Sea Level Operation)**

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

	Power Consumption @ 120 VAC	
GP501 GP401 GP301 GP201	70 - 140 watts 60 - 110 watts 55 - 90 watts 40 - 60 watts	

Inlet/Outlet: 3.5" OD (3.0" PVC Sched 40 size compatible)

Mounting: Fan may be mounted on the duct pipe or with integral flanges.

Weight: 12 lbs.

Size: 13H" x 12.5" x 12.5"

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

**Continuous Duty** 

**Class B Insulation** 

3000 RPM

Thermally protected

Rated for Indoor or Outdoor Use

GP301C/GP501C Rated for Commercial Use

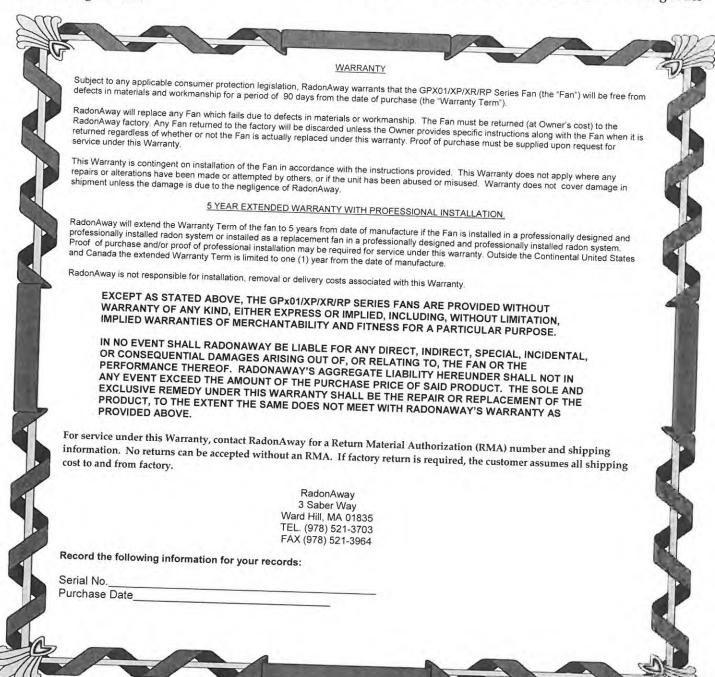


#### IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GPx01/XP/XR Series Fan for shipping damage within 15 days of receipt. Notify RadonAway of any damages immediately. Radonaway is not responsible for damages incurred during shipping. However, for your benefit, Radonaway does insure shipments.

There are no user serviceable parts inside the fan. Do not attempt to open. Return unit to factory for service.

Install the GPx01/XP/XR Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.



March \_, 2017

Ms. Ruby Ann Newborn 1900 Salem Avenue Dayton, Ohio 45406

Po.

Operations & Maintenance Manual for Sub-Slab Ventilation System at 55/57 Bish Avenue

Dear Ms. Newborn:

Enclosed please find the Operations & Maintenance Manual for the sub-slab depressurization (SSD) system that was installed at your house, located at 55/57 Bish Avenue, in June 2012. This user manual has been written to describe how the system works. It also outlines the procedures undertaken by Home Avenue Redevelopment, LLC and its contractors to maintain the system and verify that it continues to operate properly. For your convenience, a clear plastic folder has been provided in the back of the manual, where you can insert copies of your indoor air and soil vapor test result letters.

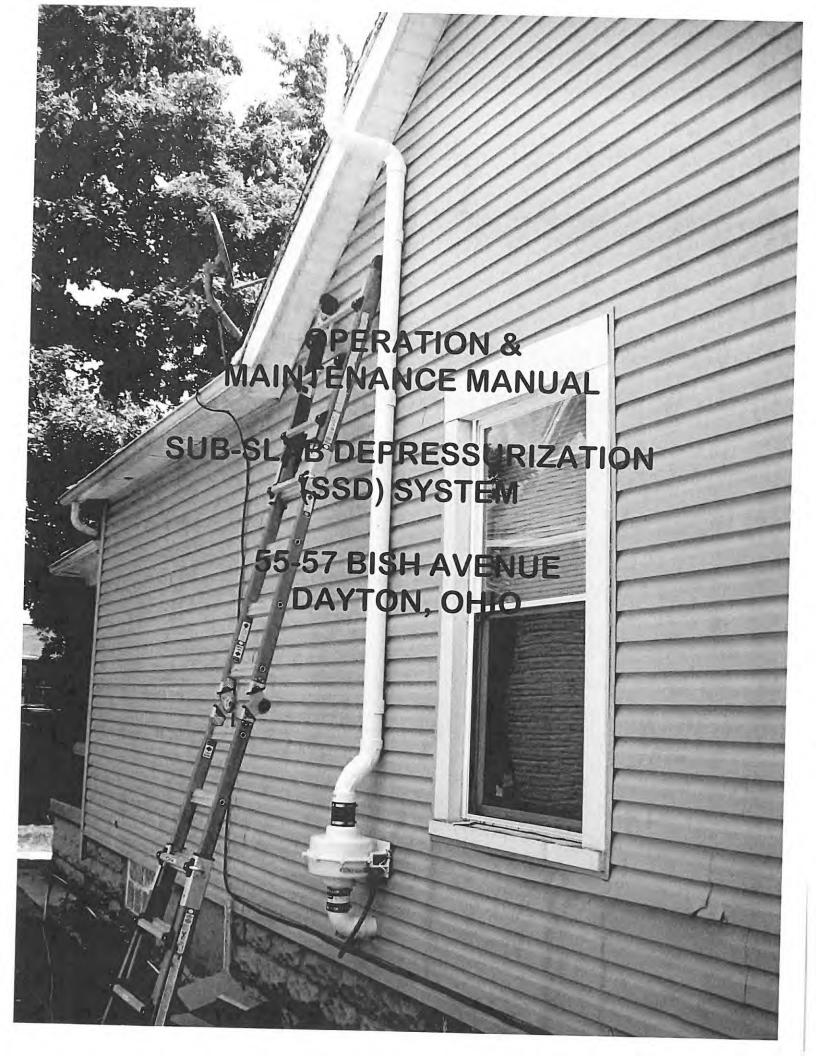
Three copies of the Operations & Maintenance Manual are being provided to you: one copy for you and one copy for each of the two rental units located at 55/57 Bish Avenue.

We hope you will take a few minutes to read through the Operations & Maintenance manual. In the meantime, if you have any questions about the SSD system at your house, or suspect it is not running properly, please do not hesitate to call Home Avenue Redevelopment, LLC at 614-793-8777.

Sincerely,

Brad White Owner/Manager

cc: Joseph M. Smindak, Ohio EPA, VAP



# SUB-SLAB DEPRESSURIZATION (SSD) SYSTEM OPERATION & MAINTENANCE MANUAL

FOR: 55 & 57 BISH AVENUE DAYTON, OHIO 45417

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#### 1.0 INTRODUCTION

This Operation & Maintenance (O&M) manual has been prepared to serve as a user manual for the sub-slab depressurization (SSD) system installed at 55, 57 Bish Avenue, Dayton, Ohio. An O&M manual for the SSDS system installed at 55, 57 Bish Avenue, Dayton, Ohio was previously provided to you by DPH Holdings Corporation. The O&M manual was revised for the purpose of providing you with updated background information and points of contact.

From 2007 to 2008, Delphi Corporation and U.S. Environmental Protection Agency (EPA) conducted environmental investigation activities near the former Delphi Automotive Holdings Group Home Avenue Operations, located at 2701 Home Avenue, Dayton, Ohio (Home Avenue facility). Monitoring activities were conducted thereafter. A SSD system was installed in June 2012 at this address. When operating properly, the SSD system reduces or prevents sub-slab soil vapors from entering the house.

SSD systems are a proven, effective and economical means for intercepting subsurface soil vapors that might otherwise infiltrate into a structure. These systems have been successfully installed and operated in residential structures at locations throughout the United States.

The Home Avenue facility ceased operations in 2008. DPH Holdings Corp. submitted a request to enter the Home Avenue facility property into the Voluntary Action Program administered by Ohio Environmental Protection Agency (Ohio EPA). The Voluntary Action Program establishes rules for environmental assessment and remediation.

Home Avenue Redevelopment, LLC (HAR) purchased the Home Avenue facility and assumed responsibility for completing the voluntary action that was underway. The City of Dayton and HAR are co-Volunteers in the process. O&M of the SSD system is required by the Voluntary Action Program.

The SSD system at this location was installed in accordance with the Access Agreement signed between Delphi Corporation and the owner of the property at that time. The access agreement was updated in 2013 to include the current owner of the Home Avenue facility and the current home owner (or tenant). A proposed revision to the access agreement is included in Appendix A.

In accordance with the Access Agreement, the performance of the SSD system is routinely monitored, fulfilling requirements originally established under U.S. EPA, and superseded by requirements established in an Operations and Maintenance Agreement between Ohio EPA and the Volunteers, as described in the Operations and Maintenance Plan (O&M Plan). Performance monitoring includes inspection of the SSD

1

system and its components, and collection of soil vapor and indoor air samples for laboratory analysis as specified in the O&M Plan. The anticipated schedule for performance monitoring at this location is described in Section 4 of this manual. Performance monitoring will be performed until such time as it is determined by HAR and Ohio EPA VAP that operation, maintenance and monitoring of the SSD system is no longer required.

The previous owner of the Home Avenue Facility and HAR have taken steps to remove historic sources of soil vapor from the Home Avenue facility, which have included operating a soil vapor extraction (SVE) remediation system and conducting mass soil excavation.

#### 2.0 SYSTEM DESCRIPTION

At the time of installation, DPH Holdings Corporation contracted A-Z Radon Services, a certified radon mitigation contractor licensed by the State of Ohio Department of Health and experienced in installation of SSD systems for vapor removal at residential locations, to design and install the SSD system at this address. The SSD system design for this house was initially approved the by U.S. EPA and subsequently incorporated as a remedial action in the voluntary action, by agreement with Ohio EPA.

An SSD system operates by creating a lower air pressure beneath the slab of this house relative to the air pressure inside. The reduced sub-slab air pressure, or vacuum, is created by operation of an electrically powered fan that draws air from beneath the slab and exhausts it through piping installed along the side of the house extending above the roofline.

The SSD system installed at this location consists of the following components:

- Two suction points installed through the concrete slab;
- One Radon Away™ model GP501 fan assembly installed on the outside of the structure;
- PVC piping installed on the exterior of the structure; and
- One fan disconnect switch, locked by padlock, installed on the exterior of the structure.

A diagram and photographs of the SSD system installed at this house are presented in Appendix B. Manufacturer specifications, instructions for operation and warranties for the fan assembly are presented in Appendix C.

#### 3.0 OPERATION AND MAINTENANCE

#### 3.1 Operation

The SSD system creates a vacuum to change the path of soil vapor from entering your house through the foundation slab to be vented outside, above the roof. To ensure the SSD system is actively preventing soil vapors from entering the structure, it is necessary that it remain operation at all times. It is recommended that you check the system on a regular basis to ensure it is operation properly. In addition, HAR and/or its contractor is required to check the system each time indoor air and sub-slab soil vapor samples are collected, as described in Section 4 of this manual.

The SSD system installed at this location is connected to the home's electrical power supply. The SSD system fan has been installed with a disconnect switch enclosed in a locked box to prevent unauthorized access or accidental shut-off. You have been provided a key for the padlock so that the disconnect switch can be accessed if necessary. A manometer, or "U-tube" (Appendix B, Photo 2), is installed above the fan assembly on the exhaust pipe mounted to the exterior of the building, and provides visual verification that negative pressure is being maintained beneath the structure. You should perform the following monthly to verify that the SSD system is operating properly:

- Visually inspect the SSD system and piping to look for signs of damage.
- Visually inspect the U-tube to confirm that a vacuum is maintained- liquid levels in the tubes should not be even with each other (i.e. one side should be higher than the other).
- Verify that the exhaust point remains unobstructed- obstructions could prevent discharge of air to the atmosphere.
- Listen to the fan assembly to verify it is operating- you should be able to hear a low humming noise and or the rush of air out of the fan into the exhaust piping.

If at any time the SSD system does not appear to be running, check the power supply in the house to verify there has not been a power outage. If a power outage has not occurred, check the padlocked disconnect switch to determine whether someone has turned it off. Turn the switch to the "on" position and check the SSD system to confirm that its operation has been restored. If still not operating, check the electrical panel to see if the breaker for the SSD system has tripped. If the break is in the "off" position, reset the breaker to the "on" position. If the problem persists, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

#### 3.2 Maintenance

Maintenance, alteration and repair of the SSD system will be performed, as necessary, by HAR contractors. Performance of such activities by anyone other than HAR's contractors could result in damage to the SSD system and reduction of its effectiveness. Furthermore, alteration of attempted repair by others may result in voiding the manufacturer's warranties.

As stated in Section 3.1 of this manual, if you observe that the SSD system is damaged and/or not operating properly, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

If during a scheduled sampling and inspection event (described in Section 4 of this manual), HAR's representatives determine that repair or maintenance of the system is necessary, HAR will arrange for service to the SSD system as soon as possible.

#### 4.0 MONITORING

By signing the Access Agreement in Appendix A, you have granted HAR and its representatives permission to collect soil vapor and indoor air samples at this location to verify that the SSD system is working properly.

Pursuant to Ohio EPA's requirements, annual inspections, system vacuum/pressure will be monitored, the system fans/blower will be checked for operation, several components (including system piping and seals) will be visually inspected, and system operation by the resident will be confirmed. Sampling of the subslab vapor and indoor air may be conducting during the annual inspection (refer to Section 5.0 of the February 2017, O&M Plan¹ for the random selection process) until the SSD system is no longer required.

The sub-slab vapor and indoor air samples collected at this location will be sent to a laboratory certified to perform analysis of such samples. These activities will be performed at no cost to the owner or occupants of this structure.

The results of the laboratory testing will be presented to the owner of this property, and shared with environmental agencies such as the Ohio EPA, Ohio Department of Health, and other government agencies as appropriate. For your convenience, this O&M manual contains plastic organizer sleeves for storage of sampling data and other relevant information.

<sup>&</sup>lt;sup>1</sup> Hull & Associates, Inc., 2017. Operation and Maintenance Plan for the Dayton Aviation Heritage Redevelopment Property. Hull Document No. HME001.300.0075, February 2017.

#### 5.0 CONTACT INFORMATION

HAR appreciates your continued cooperation concerning SSD system operation, maintenance and performance monitoring at this location. Should you have any questions concerning the environmental sampling performed at this location, please contact one of the following parties:

HAR — Bradford White — 614-7903-8777

Ohio EPA Southwest District Office — Voluntary Action Program Site Coordinator — 937-285-6064

In the event the SSD system is not operating properly, please contact HAR at 614-793-8777 to report the trouble.

#### APPENDIX A

Access Agreement

# HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

This Agreement is made between <u>Ruby Ann Newbourn</u>, whose mailing address is <u>1900 Salem Avenue</u>, <u>Dayton, Ohio 45406</u>, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>55 Bish Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as "Property" at
  reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- For purposes of providing note under this Agreement, the contact person for the Owner is \_\_\_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
- 10. HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
- 11. This Agreement is intended to be and shall be construed as a grant of temporary right of access and not an interest in the Property.

- 12. The results of testing performed at the house will be provided to the Owner as soon as possible. Results will also be shared with environmental agencies such as the Ohio EPA, Ohio Department Health and other government agencies as appropriate. Owner agrees that HAR and its representatives may contact Owner's tenant to coordinate sampling.
- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
- This Agreement is governed by Ohio law.
- 15. This Agreement shall be effective on the first date it is fully executed and expires whenever the environmental testing, recovery and/or treatment system is no longer required as determined by the Ohio EPA or HAR.
- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER	
Name (Signature and Print)	
Date	
HOME AVENUE REDEVELOPMENT, LL	.c
Name (Signature and Print)	_
Title	_
Data	_

# HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

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  to the Property located at <u>57 Bish Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as "Property" at
  reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- For purposes of providing note under this Agreement, the contact person for the Owner is phone number \_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
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- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
- 10. HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
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- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

Name (Signature and Print)
Date
HOME AVENUE REDEVELOPMENT, LL
Name (Signature and Print)
Name (Signature and Print)

OWNER

#### APPENDIX B

SSD System Diagram and Photos



# SSD System Installation Report

Address: 55 & 57 Bish, Dayton, Ohio 45417

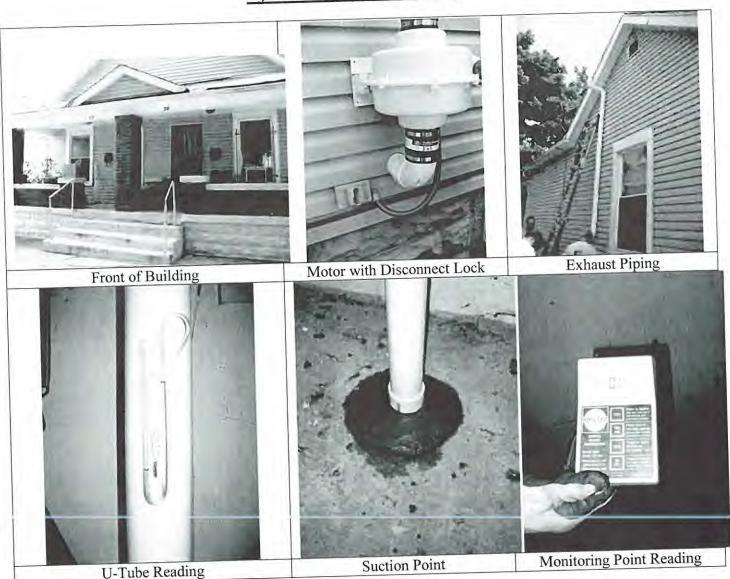
Exteri	or Check	dist			
	Yes	No	See Comments		
Pipe sealed at wall	X		- 11 Comments		
System lock present		X			
Motor running	X				
Motor Couplers Tightened	X				
Condensation in motor		X			
Exhaust pipe present	X	11			
Piping secured to wall	X				
Motor	Checkli	st			
Volts	122				
Amps	.89				
Watts	106				
System operating pressure	3.5"				
Monitoring point pressure	-0.053"				

Interior (	Check	list	
	Yes	No	See Comments
Piping sloped correctly	X		- To Comments
Piping fastened correctly	X		
Leaking pipe Joints		X	
Suction Point(s) sealed correctly	X		
Newly formed cracks		X	
Sump Pump Sealed			N/A
Condensation in Piping		X	14/11
Pictu	res		
Front of Building	X		
Motor with Disconnect	X		
Exhaust Piping	X		
J – Tube	X		
Suction Point(s)	X		
Monitoring Point Reading	X		

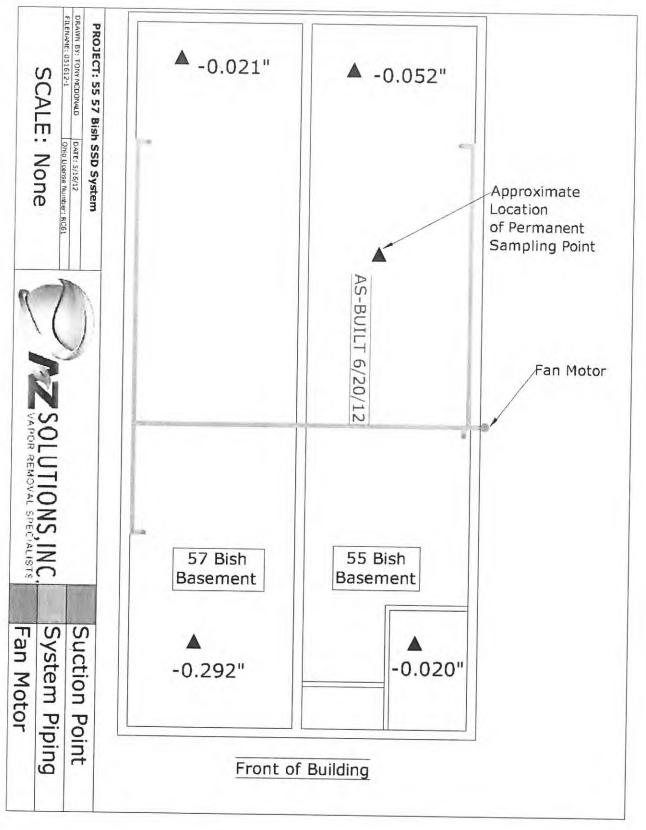
Comments:		



### System Status Pictures







#### APPENDIX C

Manufacturer's Instructions, Specifications and Warranties



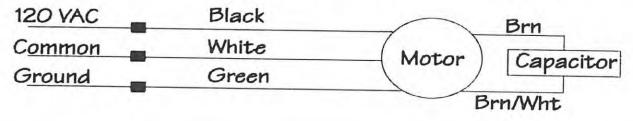
# RadonAway Ward Hill, MA IN014 Rev E XP/GP/XR Series Fan Installation Instructions

# Please Read And Save These Instructions.

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

- **1. WARNING!** Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible of flammable materials.
- 2. WARNING! Do not use fan to pump explosive or corrosive gases.
- 3. WARNING! Check voltage at the fan to insure it corresponds with nameplate.
- **4. WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
- NOTICE! There are no user serviceable parts located inside the fan unit. Do NOT attempt to open. Return unit to the factory for service.
- 6. All wiring must be in accordance with local and national electrical codes.

# DynaVac GP/XP/XR/RP Series Fan Wiring Diagram





# INSTALLATION INSTRUCTION IN014 Rev E

DynaVa	ac - XP/XR Series	DynaVa	ac - GP Series
XP101	p/n 23008-1,-2	GP201	p/n 23007-1
XP151	p/n 23010-1,-2	GP301	p/n 23006-1,-2
XP201	p/n 23011-1,-2	GP401	p/n 23009-1
XR161	p/n 23018-1,-2	GP501	p/n 23005-1,-2
XR261	p/n 23019-1,-2		

# 1.0 SYSTEM DESIGN CONSIDERATIONS

# 1.1 INTRODUCTION

The DynaVac GP/XP/XR Series Radon Fans are intended for use by trained, professional Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of a DynaVac Fan. This instruction should be considered as a supplement to EPA standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

# 1.2 ENVIRONMENTALS

The GP/XP/XR Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

# 1.3 ACOUSTICS

The GP/XP/XR Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

# 1.4 GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the GP/XP/XR Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

# 1.5 SLAB COVERAGE

The GP/XP/XR Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the GP/XP/XR Series Fan best suited for the sub-slab material can improve the slab coverage. The GP & XP series have a wide range of models to choose from to cover a wide range of subslab material. The higher static suction fans are generally used for tighter subslab materials. The XR Series is specifically designed for high flow applications such as stone/gravel and drain tile. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

# 1.6 CONDENSATION & DRAINAGE

Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The GP/XP/XR Series Fan MUST be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The GP/XP/XR Series Fans are NOT suitable for underground burial.

For GP/XP/XR Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

Pipe	Minim	um Rise per F	oot of Run*
Dia.	@25 CFM	@50 CFM	@100 CFM
4"	1/8"	1/4"	3/8"
3"	1/4"	3/8"	11/2"

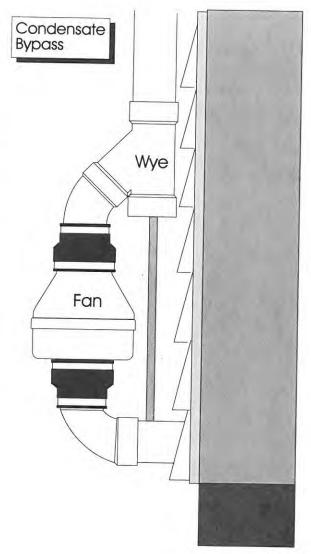


Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.

The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

# 1.7 "SYSTEM ON" INDICATOR

A properly designed system should incorporate a "System On" Indicator for affirmation of system operation. A manometer, such as a U-Tube, or a vacuum alarm is recommended for this purpose.



<sup>\*</sup>Typical GP/XP/XR Series Fan operational flow rate is 25 - 90 CFM. (For more precision, determine flow rate by using the chart in the addendum.)

### 1.8 ELECTRICAL WIRING

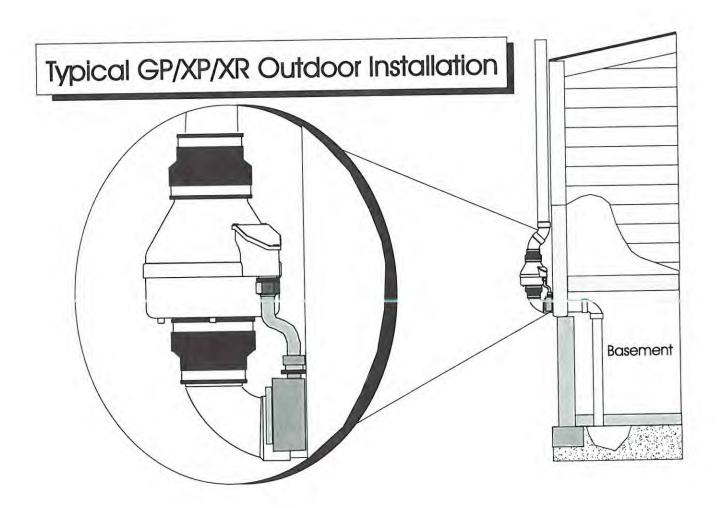
The GP/XP/XR Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Electrical Code and state and local building codes. All electrical work should be performed by a qualified electrician. Outdoor installations require the use of a U.L. listed watertight conduit.

# 1.9 SPEED CONTROLS

The GP/XP/XR Series Fans are rated for use with electronic speed controls ,however, they are generally not recommended.

# 2.0 INSTALLATION

The GP/XP/XR Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The GP/XP/XR Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket.



## 2.1 MOUNTING

Mount the GP/XP/XR Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.

# 2.2 MOUNTING BRACKET (optional)

The GP/XP/XR Series fan may be optionally secured with the integral mounting bracket on the GP Series fan or with RadonAway P/N 25007-2 mounting bracket for an XP/XR Series fan. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

#### 2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation.

# 2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections:

Fan Wire	Connection
Green	Ground
Black	AC Hot
White	AC Common

# Closet Basement

# 2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

# 2.6 OPERATION CHECKS

- \_\_\_\_\_ Verify all connections are tight and leak-free.
- \_\_\_\_ Insure the GP/XP/XR Series Fan and all ducting is secure and vibration-free.
- Verify system vacuum pressure with manometer. Insure vacuum pressure is less than maximum recommended operating pressure

(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)
(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)
See Product Specifications. If this is exceeded, increase the number of suction points.

\_ Verify Radon levels by testing to EPA protocol.

# XP/XR SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the XP & XR Series Fan:

			Typica	I CFM V	s Static St	action "W	$\mathbb{C}$		- 0"
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
XP101	125	118	90	56	5	-	2	16	(2)
XP151	180	162	140	117	78	46	10	-	-
XP201	150	130	110	93	74	57	38	20	-
XR161	215	175	145	105	75	45	15	-	1.5
XR261	250	215	185	150	115	80	50	20	-

Maximum Recommended Operating Pressure*					
XP151 1.3 XP201 1.5 XR161 1.3	9" W.C. 8" W.C. 7" W.C. 8" W.C. 5" W.C.	(Sea Level Operation)** (Sea Level Operation)** (Sea Level Operation)** (Sea Level Operation)** (Sea Level Operation)**			

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

	Power Consumption @ 120 VAC	
XP101	40 - 49 watts	
XP151	45 - 60 watts	
XP201	45 - 66 watts	
XR161	48 - 75 watts	
XR261	65 - 105 watts	

XP Series Inlet/Outlet: 4.5" OD (4.0" PVC Sched 40 size compatible)

XR Series Inlet/Outlet: 5.875" OD

Mounting: Mount on the duct pipe or with optional mounting bracket.

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

**Size**: 9.5H" x 8.5" Dia. **Weight**: 6 lbs. (XR261 - 7 lbs)

Continuous Duty Thermally protected

Class B Insulation 3000 RPM

Residential Use Only Rated for Indoor or Outdoor use



# GP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the GPx01 Series Fan:

		Typic	al CFM V	s Static S	uction "W	C	
	1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
GP501	95	87	80	70	57	30	5
GP401 GP301	93 92	82 77	60 45	38 10	12	-	2
GP201	82	58	5	-	-	-	4

	Maximum Recommende	ed Operating Pressure*
GP501	3.8" W.C.	(Sea Level Operation)**
GP401	3.0" W.C.	(Sea Level Operation)**
GP301	2.4" W.C.	(Sea Level Operation)**
GP201	1.8" W.C.	(Sea Level Operation)**

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

	Power Consumption @ 120 VAC	
GP501 GP401 GP301 GP201	70 - 140 watts 60 - 110 watts 55 - 90 watts 40 - 60 watts	

Inlet/Outlet: 3.5" OD (3.0" PVC Sched 40 size compatible)

Mounting: Fan may be mounted on the duct pipe or with integral flanges.

Weight: 12 lbs.

Size: 13H" x 12.5" x 12.5"

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

**Continuous Duty** 

Class B Insulation

3000 RPM

Thermally protected

Rated for Indoor or Outdoor Use

GP301C/GP501C Rated for Commercial Use



# IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GPx01/XP/XR Series Fan for shipping damage within 15 days of receipt. Notify RadonAway of any damages immediately. Radonaway is not responsible for damages incurred during shipping. However, for your benefit, Radonaway does insure shipments.

There are no user serviceable parts inside the fan. Do not attempt to open. Return unit to factory for service.

Install the GPx01/XP/XR Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.



March \_, 2017

Mr. Shawn Owensby 79 S. Ardmore Ave. Dayton, Ohio 45417

Re: Operations & Maintenance Manual for Sub-Slab Ventilation System at 79 S. Ardmore Avenue

Dear Mr. Owensby:

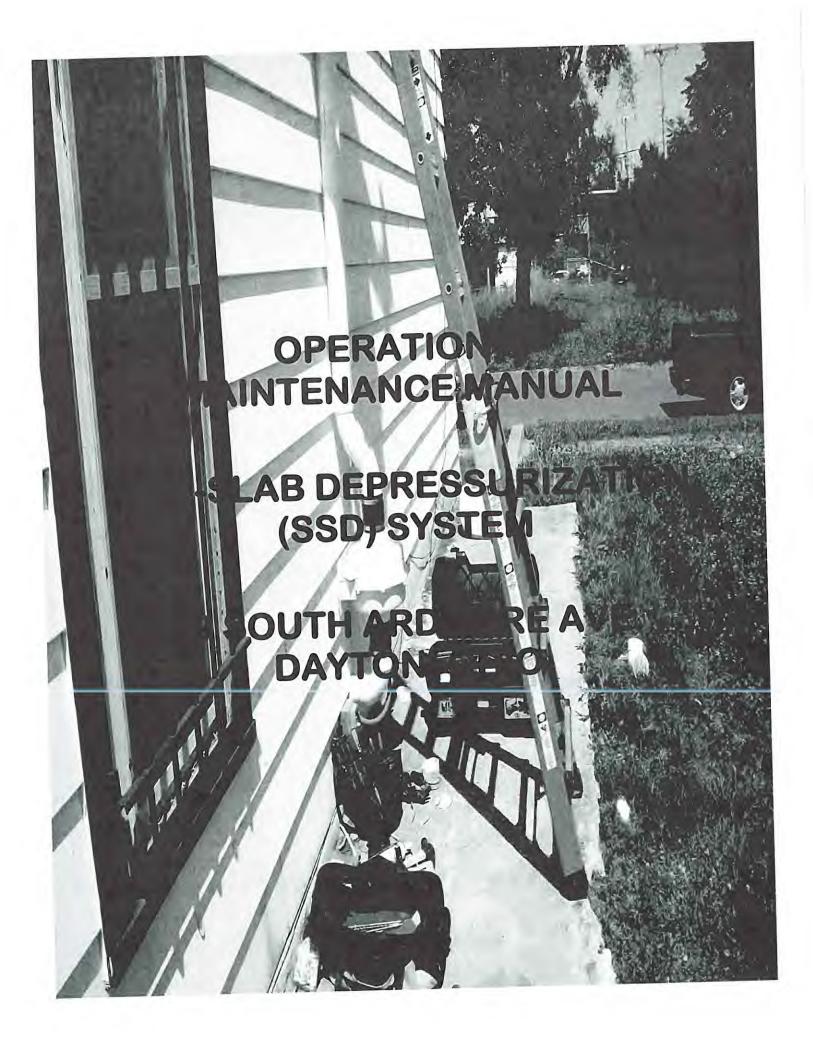
Enclosed please find the Operations & Maintenance Manual for the sub-slab depressurization (SSD) system that was installed at your house, located at 79 South Ardmore Avenue, in June 2012. This user manual has been written to describe how the system works. It also outlines the procedures undertaken by Home Avenue Redevelopment, LLC and its contractors to maintain the system and verify that it continues to operate properly. For your convenience, a clear plastic folder has been provided in the back of the manual, where you can insert copies of your indoor air and soil vapor test results.

We hope you will take a few minutes to read through the Operations & Maintenance manual. In the meantime, if you have any questions about the SSD system at your house, or suspect it is not running properly, please do not hesitate to call Home Avenue Redevelopment, LLC at 614-793-8777.

Sincerely,

Bradford White Owner/Manager

cc: Joseph M. Smindak, Ohio EPA, VAP



# SUB-SLAB DEPRESSURIZATION (SSD) SYSTEM OPERATION & MAINTENANCE MANUAL

FOR: 79 S. ARDMORE AVENUE DAYTON, OHIO 45417

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# 1.0 INTRODUCTION

This Operation & Maintenance (O&M) manual has been prepared to serve as a user manual for the subslab depressurization (SSD) system installed at 79 S. Ardmore Avenue, Dayton, Ohio. An O&M manual for the SSDS system installed at 79 S. Ardmore Avenue, Dayton, Ohio was previously provided to you by the DPH Holdings Corporation. The O&M manual was revised for the purpose of providing you with updated background information and points of contact.

From 2007 to 2008, Delphi Corporation and U.S. Environmental Protection Agency (EPA) conducted environmental investigation activities near the former Delphi Automotive Holdings Group Home Avenue Operations, located at 2701 Home Avenue, Dayton, Ohio (Home Avenue facility). Monitoring activities were conducted thereafter. A SSD system was installed in June 2012 at this address. When operating properly, the SSD system reduces or prevents sub-slab soil vapors from entering the house.

SSD systems are a proven, effective and economical means for intercepting subsurface soil vapors that might otherwise infiltrate into a structure. These systems have been successfully installed and operated in residential structures at locations throughout the United States.

The Home Avenue facility ceased operations in 2008. DPH Holdings Corp. submitted a request to enter the Home Avenue facility property into the Voluntary Action Program administered by Ohio Environmental Protection Agency (Ohio EPA). The Voluntary Action Program establishes rules for environmental assessment and remediation.

Home Avenue Redevelopment, LLC (HAR) purchased the Home Avenue facility and assumed responsibility for completing the voluntary action that was underway. The City of Dayton and HAR are co-Volunteers in the process. O&M of the SSD system is required by the Voluntary Action Program.

The SSD system at this location was installed in accordance with the Access Agreement signed between Delphi Corporation and the owner of the property at that time. The access agreement was updated in 2013 to include the current owner of the Home Avenue facility and the current home owner (or tenant). A proposed revision to the access agreement is included in Appendix A.

In accordance with the Access Agreement, the performance of the SSD system is routinely monitored, fulfilling requirements originally established under U.S. EPA, and superseded by requirements established in an Operations and Maintenance Agreement between Ohio EPA and the Volunteers, as described in the Operations and Maintenance Plan (O&M Plan). Performance monitoring includes inspection of the SSD

1

SSD System O&M Manual 79 S. Ardmore Avenue Dayton, Ohio

system and its components, and collection of soil vapor and indoor air samples for laboratory analysis as specified in the O&M Plan. The anticipated schedule for performance monitoring at this location is described in Section 4 of this manual. Performance monitoring will be performed until such time as it is determined by HAR and Ohio EPA VAP that operation, maintenance and monitoring of the SSD system is no longer required.

The previous owner of the Home Avenue Facility and HAR have taken steps to remove historic sources of soil vapor from the Home Avenue facility, which have included operating a soil vapor extraction (SVE) remediation system and conducting mass soil excavation.

# 2.0 SYSTEM DESCRIPTION

At the time of installation, Delphi Corporation contracted A-Z Radon Services, a certified radon mitigation contractor licensed by the State of Ohio Department of Health and experienced in installation of SSD systems for vapor removal at residential locations, to design and install the SSD system at this address. The SSD system design for this house was initially approved the by U.S. EPA and subsequently incorporated as a remedial action in the voluntary action, by agreement with Ohio EPA.

An SSD system operates by creating a lower air pressure beneath the slab of this house relative to the air pressure inside. The reduced sub-slab air pressure, or vacuum, is created by operation of an electrically powered fan that draws air from beneath the slab and exhausts it through piping installed along the side of the house extending above the roofline.

The SSD system installed at this location consists of the following components:

- Two suction points installed through the concrete slab;
- One Radon Away<sup>TM</sup> model GP501 fan assembly installed on the outside of the structure;
- PVC piping installed on the exterior of the structure; and
- One fan disconnect switch, locked by padlock, installed on the exterior of the structure.

A diagram and photographs of the SSD system installed at this house are presented in Appendix B. Manufacturer specifications, instructions for operation and warranties for the fan assembly are presented in Appendix C.

# 3.0 OPERATION AND MAINTENANCE

# 3.1 Operation

The SSD system creates a vacuum to change the path of soil vapor from entering your house through the foundation slab to be vented outside, above the roof. To ensure the SSD system is actively preventing soil vapors from entering the structure, it is necessary that it remain operation at all times. It is recommended that you check the system on a regular basis to ensure it is operation properly. In addition, HAR and/or its contractor is required to check the system each time indoor air and sub-slab soil vapor samples are collected, as described in Section 4 of this manual.

The SSD system installed at this location is connected to the home's electrical power supply. The SSD system fan has been installed with a disconnect switch enclosed in a locked box to prevent unauthorized access or accidental shut-off. You have been provided a key for the padlock so that the disconnect switch can be accessed if necessary. A manometer, or "U-tube" (Appendix B, Photo 2), is installed above the fan assembly on the exhaust pipe mounted to the exterior of the building, and provides visual verification that negative pressure is being maintained beneath the structure. You should perform the following monthly to verify that the SSD system is operating properly:

- Visually inspect the SSD system and piping to look for signs of damage.
- Visually inspect the U-tube to confirm that a vacuum is maintained- liquid levels in the tubes should not be even with each other (i.e. one side should be higher than the other).
- Verify that the exhaust point remains unobstructed- obstructions could prevent discharge of air to the atmosphere.
- Listen to the fan assembly to verify it is operating- you should be able to hear a low humming noise and or the rush of air out of the fan into the exhaust piping.

If at any time the SSD system does not appear to be running, check the power supply in the house to verify there has not been a power outage. If a power outage has not occurred, check the padlocked disconnect switch to determine whether someone has turned it off. Turn the switch to the "on" position and check the SSD system to confirm that its operation has been restored. If still not operating, check the electrical panel to see if the breaker for the SSD system has tripped. If the break is in the "off" position, reset the breaker to the "on" position. If the problem persists, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

# 3.2 Maintenance

Maintenance, alteration and repair of the SSD system will be performed, as necessary, by HAR contractors. Performance of such activities by anyone other than HAR's contractors could result in damage to the SSD system and reduction of its effectiveness. Furthermore, alteration of attempted repair by others may result in voiding the manufacturer's warranties.

As stated in Section 3.1 of this manual, if you observe that the SSD system is damaged and/or not operating properly, please contact HAR at 614-793-8777 to report the trouble. An HAR representative or contractor will be contacted to inspect the system and perform any required repair or maintenance at no cost to the homeowner in order to resume normal operating conditions as soon as possible.

If during a scheduled sampling and inspection event (described in Section 4 of this manual), HAR's representatives determine that repair or maintenance of the system is necessary, HAR will arrange for service to the SSD system as soon as possible.

# 4.0 MONITORING

By signing the Access Agreement in Appendix A, you have granted HAR and its representatives permission to collect soil vapor and indoor air samples at this location to verify that the SSD system is working properly.

Pursuant to Ohio EPA's requirements, annual inspections, system vacuum/pressure will be monitored, the system fans/blower will be checked for operation, several components (including system piping and seals) will be visually inspected, and system operation by the resident will be confirmed. Sampling of the subslab vapor and indoor air may be conducting during the annual inspection (refer to Section 5.0 of the February 2017, O&M Plan¹ for the random selection process) until the SSD system is no longer required.

The sub-slab vapor and indoor air samples collected at this location will be sent to a laboratory certified to perform analysis of such samples. These activities will be performed at no cost to the owner or occupants of this structure.

The results of the laboratory testing will be presented to the owner of this property, and shared with environmental agencies such as the Ohio EPA, Ohio Department of Health, and other government agencies as appropriate. For your convenience, this O&M manual contains plastic organizer sleeves for storage of sampling data and other relevant information.

<sup>&</sup>lt;sup>1</sup> Hull & Associates, Inc., 2017. Operation and Maintenance Plan for the Dayton Aviation Heritage Redevelopment Property. Hull Document No. HME001.300.0075, February 2017.

# 5.0 CONTACT INFORMATION

HAR appreciates your continued cooperation concerning SSD system operation, maintenance and performance monitoring at this location. Should you have any questions concerning the environmental sampling performed at this location, please contact one of the following parties:

HAR – Bradford White – 614-7903-8777

Ohio EPA Southwest District Office – Voluntary Action Program Site Coordinator – 937-285-6064

In the event the SSD system is not operating properly, please contact HAR at 614-793-8777 to report the trouble.

# APPENDIX A

Access Agreement

# HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

This Agreement is made between <u>Shawn Owensby</u>, whose mailing address is <u>79 S. Ardmore Avenue</u>, <u>Dayton</u>, <u>Ohio 45417</u>, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>79 S. Ardmore Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- 2. For purposes of providing note under this Agreement, the contact person for the Owner is \_\_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
- 10. HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
- 11. This Agreement is intended to be and shall be construed as a grant of temporary right of access and not an interest in the Property.

- 12. The results of testing performed at the house will be provided to the Owner as soon as possible.

  Results will also be shared with environmental agencies such as the Ohio EPA, Ohio Department Health and other government agencies as appropriate. Owner agrees that HAR and its representatives may contact Owner's tenant to coordinate sampling.
- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
- 14. This Agreement is governed by Ohio law.
- 15. This Agreement shall be effective on the first date it is fully executed and expires whenever the environmental testing, recovery and/or treatment system is no longer required as determined by the Ohio EPA or HAR.
- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER		
Name (S	ignature and	Print)
Date		
HOME A	VENUE REDI	EVELOPMENT, LLC
Name (	Signature and	Print)
Title		
Date		

# APPENDIX B

SSD System Diagram and Photos



# SSD System Installation Report

Address: 79 South Ardmore, Dayton, Ohio 45417

Exterio	r Check	list	
	Yes		See Comments
Pipe sealed at wall	X		
System lock present		X	
Motor running	X		
Motor Couplers Tightened	X	1 = 1	
Condensation in motor		X	
Exhaust pipe present	X		
Piping secured to wall	X		
Motor	r Check	list	
Volts	125		
Amps	.89		
Watts	101		
System operating pressure	3.5"		
Monitoring point pressure	-0.0	)19"	

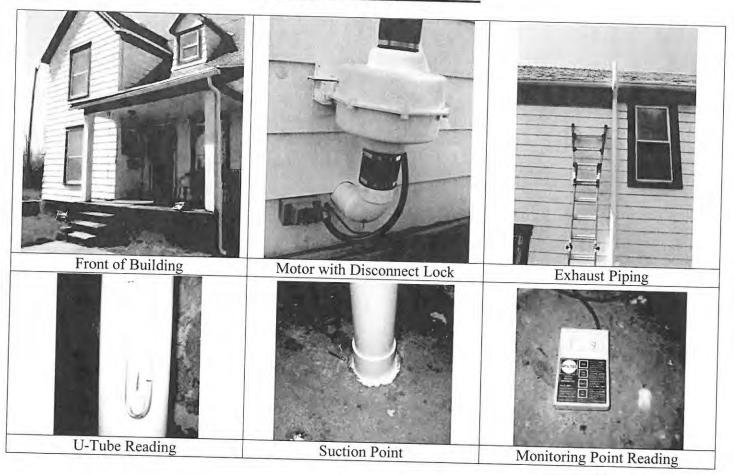
Interior C	heck	list	
	Yes	No	See Comments
Piping sloped correctly	X		
Piping fastened correctly	X		
Leaking pipe Joints		X	
Suction Point(s) sealed correctly	X		
Newly formed cracks		X	
Sump Pump Sealed			N/A
Condensation in Piping		X	
Pictu	ires		
Front of Building	X		
Motor with Disconnect			
Exhaust Piping			
U – Tube	X		
Suction Point(s)	X		
Monitoring Point Reading	X		

Comments: Clay under 2" slab	
-	

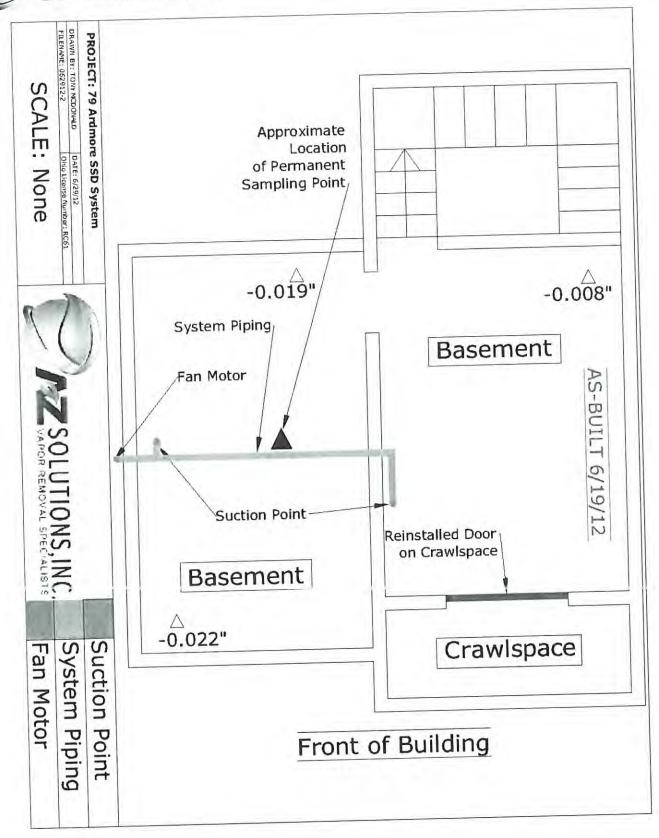




# System Status Pictures







# APPENDIX C

Manufacturer's Instructions, Specifications and Warranties



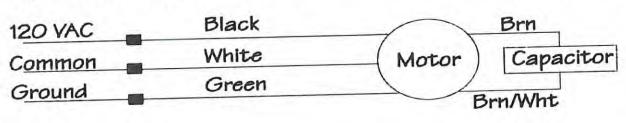
# RadonAway Ward Hill, MA IN014 Rev E XP/GP/XR Series Fan Installation Instructions

# Please Read And Save These Instructions.

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

- WARNING! Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible of flammable materials.
- 2. WARNING! Do not use fan to pump explosive or corrosive gases.
- 3. WARNING! Check voltage at the fan to insure it corresponds with nameplate.
- 4. WARNING! Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
- NOTICE! There are no user serviceable parts located inside the fan unit.Do NOT attempt to open. Return unit to the factory for service.
- 6. All wiring must be in accordance with local and national electrical codes.

# DynaVac GP/XP/XR/RP Series Fan Wiring Diagram



Page 1 of 8



# **INSTALLATION INSTRUCTION IN014 Rev E**

Dyna V.	ac - XP/XR Series	DynaV	ac - GP Series
XP101 XP151	p/n 23008-1,-2	GP201	p/n 23007-1
XP201	p/n 23010-1,-2 p/n 23011-1,-2	GP301 GP401	p/n 23006-1,-2 p/n 23009-1
XR161 XR261	p/n 23018-1,-2 p/n 23019-1,-2	GP501	p/n 23005-1,-2

# 1.0 SYSTEM DESIGN CONSIDERATIONS

# 1.1 INTRODUCTION

The DynaVac GP/XP/XR Series Radon Fans are intended for use by trained, professional Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of a DynaVac Fan. This instruction should be considered as a supplement to EPA standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

# 1.2 ENVIRONMENTALS

The GP/XP/XR Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

# 1.3 ACOUSTICS

The GP/XP/XR Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

# 1.4 GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the GP/XP/XR Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

# 1.5 SLAB COVERAGE

The GP/XP/XR Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the GP/XP/XR Series Fan best suited for the sub-slab material can improve the slab coverage. The GP & XP series have a wide range of models to choose from to cover a wide range of subslab material. The higher static suction fans are generally used for tighter subslab materials. The XR Series is specifically designed for high flow applications such as stone/gravel and drain tile. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

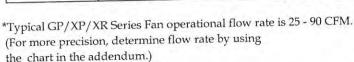
# 1.6 CONDENSATION & DRAINAGE

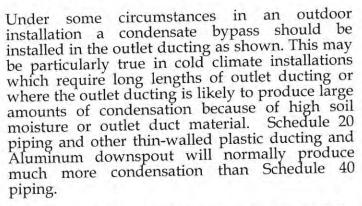
Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The GP/XP/XR Series Fan MUST be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The GP/XP/XR Series Fans are NOT suitable for underground burial.

For GP/XP/XR Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

RISE

Pine	Minimu	ım Rise per Fo	oot of Run*
Pipe Dia.	@25 CFM	@50 CFM	@100 CFM
4"	1/8"	1/4"	3/8"
3"	1/4"	3/8"	11/2"

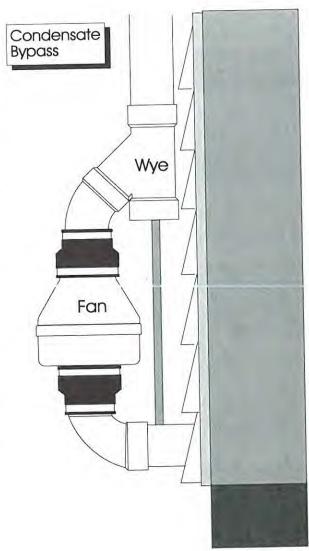




The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

# 1.7 "SYSTEM ON" INDICATOR

A properly designed system should incorporate a "System On" Indicator for affirmation of system operation. A manometer, such as a U-Tube, or a vacuum alarm is recommended for this purpose.



RUN

# 1.8 ELECTRICAL WIRING

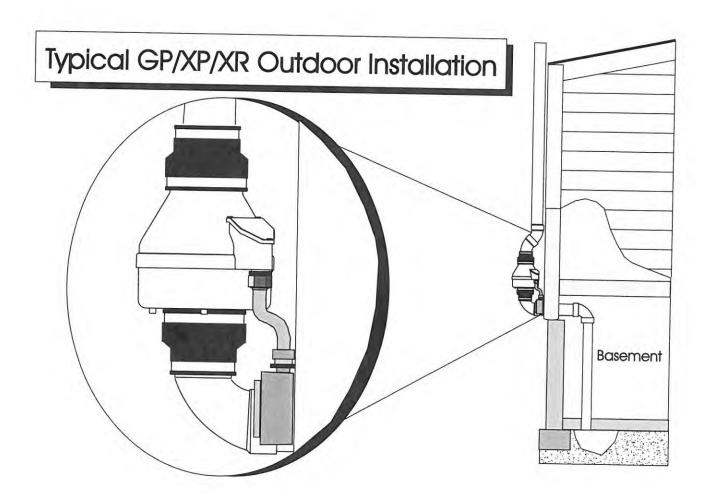
The GP/XP/XR Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Electrical Code and state and local building codes. All electrical work should be performed by a qualified electrician. Outdoor installations require the use of a U.L. listed watertight conduit.

# 1.9 SPEED CONTROLS

The GP/XP/XR Series Fans are rated for use with electronic speed controls ,however, they are generally not recommended.

# 2.0 INSTALLATION

The GP/XP/XR Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The GP/XP/XR Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket.



### 2.1 MOUNTING

Mount the GP/XP/XR Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.

# 2.2 MOUNTING BRACKET (optional)

The GP/XP/XR Series fan may be optionally secured with the integral mounting bracket on the GP Series fan or with RadonAway P/N 25007-2 mounting bracket for an XP/XR Series fan. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

# 2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation.

# 2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections:

Fan Wire	Connection
Green	Ground
Black	AC Hot
White	AC Common

# Attic Closet Basement

# 2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

# 2.6 OPERATION CHECKS

 Verify all connections are tight and leak-free.
 <b>Insure</b> the GP/XP/XR Series Fan and all ducting is secure and vibration-free.

\_\_\_\_ Verify system vacuum pressure with manometer. Insure vacuum pressure is less than maximum recommended operating pressure

(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)
(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)
See Product Specifications. If this is exceeded, increase the number of suction points.

\_ Verify Radon levels by testing to EPA protocol.

# XP/XR SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the XP & XR Series Fan:

	0"	0511	Typic	al CFM V	s Static S	uction "W	C		
	0	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
XP101 XP151	125 180	118 162	90 140	56 117	5		<del>-</del> -	-	
P201 R161	150 215	130 175	110 145	93 105	78 74	46 57	10 38	20	14
(R261	250	215	185	150	75 115	45 80	15 50	20	-

Maximum Recommended Operating Pressure*						
XP101 XP151 XP201 XR161 XR261	0.9" W.C. 1.3" W.C. 1.7" W.C. 1.3" W.C. 1.6" W.C.	(Sea Level Operation)**				

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

	Power Consumption @ 120 VAC	
XP101 XP151 XP201 XR161 XR261	40 - 49 watts 45 - 60 watts 45 - 66 watts 48 - 75 watts 65 - 105 watts	

XP Series Inlet/Outlet: 4.5" OD (4.0" PVC Sched 40 size compatible)

XR Series Inlet/Outlet: 5.875" OD

Mounting: Mount on the duct pipe or with optional mounting bracket.

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

**Size**: 9.5H" x 8.5" Dia. **Weight**: 6 lbs. (XR261 - 7 lbs)

Continuous Duty Thermally protected

Class B Insulation 3000 RPM

Residential Use Only Rated for Indoor or Outdoor use



# GP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the GPx01 Series Fan:

		Typic	al CFM V	s Static St	action "W	C	
	1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
Carles.	OF.	87	80	70	57	30	5
GP501	95 93	82	60	38	12	-	-
GP401 GP301	92	77	45	10	-	-	7
GP201	82	58	5	-	-	+	13

M	aximum Recommende	d Operating Pressure*
GP501	3.8" W.C.	(Sea Level Operation)**
GP401	3.0" W.C.	(Sea Level Operation)**
GP301	2.4" W.C.	(Sea Level Operation)**
GP201	1.8" W.C.	(Sea Level Operation)**

\*Reduce by 10% for High Temperature Operation \*\*Reduce by 4% per 1000 feet of altitude

	Power Consumption @ 120 VAC	
GP501 GP401 GP301 GP201	70 - 140 watts 60 - 110 watts 55 - 90 watts 40 - 60 watts	

Inlet/Outlet: 3.5" OD (3.0" PVC Sched 40 size compatible)

Mounting: Fan may be mounted on the duct pipe or with integral flanges.

Weight: 12 lbs.

Size: 13H" x 12.5" x 12.5"

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

**Continuous Duty** 

**Class B Insulation** 

3000 RPM

Thermally protected

Rated for Indoor or Outdoor Use

GP301C/GP501C Rated for Commercial Use

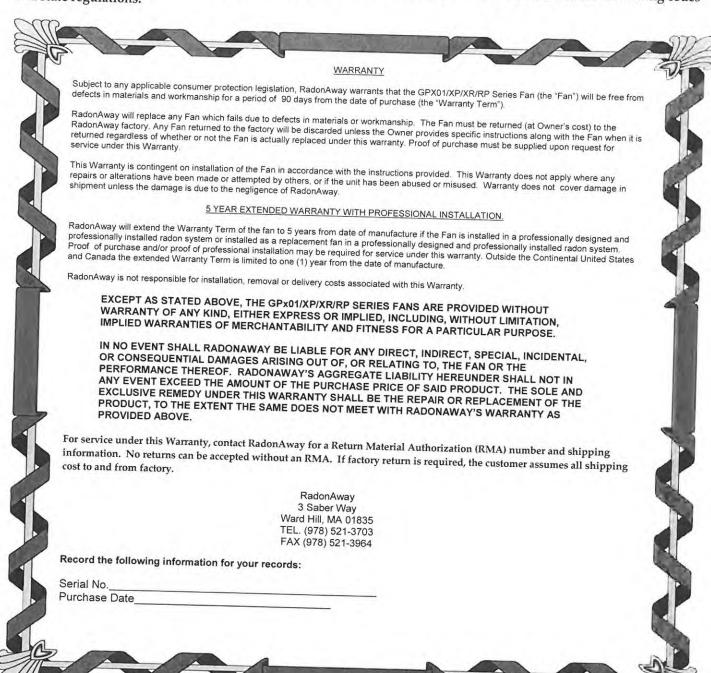


# IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GPx01/XP/XR Series Fan for shipping damage within 15 days of receipt. Notify RadonAway of any damages immediately. Radonaway is not responsible for damages incurred during shipping. However, for your benefit, Radonaway does insure shipments.

There are no user serviceable parts inside the fan. Do not attempt to open. Return unit to factory for service.

Install the GPx01/XP/XR Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.



# APPENDIX D

Access Agreements for Residences within the Residential Area of Concern

# HOME AVENUE REDEVELOPMENT, LLC PROPERTY ACCESS AND ACTIVITY AGREEMENT

This Agreement is made between <u>Ruby Ann Newbourn</u>, whose mailing address is <u>1900 Salem Avenue</u>, <u>Dayton, Ohio 45406</u>, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>55 Bish Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as "Property" at
  reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- 2. For purposes of providing note under this Agreement, the contact person for the Owner is \_\_\_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
- 10. HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
- 11. This Agreement is intended to be and shall be construed as a grant of temporary right of access and not an interest in the Property.

- 12. The results of testing performed at the house will be provided to the Owner as soon as possible. Results will also be shared with environmental agencies such as the Ohio EPA, Ohio Department Health and other government agencies as appropriate. Owner agrees that HAR and its representatives may contact Owner's tenant to coordinate sampling.
- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
- This Agreement is governed by Ohio law.
- 15. This Agreement shall be effective on the first date it is fully executed and expires whenever the environmental testing, recovery and/or treatment system is no longer required as determined by the Ohio EPA or HAR.
- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER	
Name (S	Signature and Print)
Date	
HOME	AVENUE REDEVELOPMENT, LLC
Name (	Signature and Print)
Title	
Date	

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>57 Bish Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as "Property" at
  reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- 2. For purposes of providing note under this Agreement, the contact person for the Owner is \_\_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
- 10. HAR shall provide \$150.00 to the Owner or tenant of the Property (whoever has responsibility for utilities) for electrical charges incurred as a result of the operation of the recovery and/or treatment system. HAR shall not be responsible for any interruption of the recovery and/or treatment system caused by an interruption of the electrical service, by any means, to the Property.
- This Agreement is intended to be and shall be construed as a grant of temporary right of access and not an interest in the Property.

- 12. The results of testing performed at the house will be provided to the Owner as soon as possible. Results will also be shared with environmental agencies such as the Ohio EPA, Ohio Department Health and other government agencies as appropriate. Owner agrees that HAR and its representatives may contact Owner's tenant to coordinate sampling.
- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
- 14. This Agreement is governed by Ohio law.
- 15. This Agreement shall be effective on the first date it is fully executed and expires whenever the environmental testing, recovery and/or treatment system is no longer required as determined by the Ohio EPA or HAR.
- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER	
Name (S	ignature and Print)
Date	
HOME A	AVENUE REDEVELOPMENT, LLC
Name (	Signature and Print)
Title	
Date	

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at 61 S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
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  - 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER	
Name (	Signature and Print)
Date	
HOME	AVENUE REDEVELOPMENT, LLC
Name	Signature and Print)
Title	

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at 63A S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- 2. For purposes of providing note under this Agreement, the contact person for the Owner is \_\_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
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OWNER		
Name (Si	nature and Print)	
Date		-
HOME A	/ENUE REDEVELOPMEN	T, LLC
Name (S	gnature and Print)	
Title		
Date		

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at 63B S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- 2. For purposes of providing note under this Agreement, the contact person for the Owner is \_\_\_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
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- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
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OWNER	
Name (Si	gnature and Print)
Date	
HOME A	VENUE REDEVELOPMENT, LLC
Name (S	ignature and Print)
Title	
 Date	

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>75 S. Ardmore Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- 2. For purposes of providing note under this Agreement, the contact person for the Owner is \_\_\_\_\_\_, phone number \_\_\_\_\_\_. The contact person for HAR is Brad White, phone number (614) 793-8777; fax number (614) 793-9070.
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- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
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- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER		
Name (Sig	nature and Print)	
Date		_
HOME A	ENUE REDEVELOPMENT,	LLC
Name (Si	gnature and Print)	
Title		
Date		

This Agreement is made between <u>Shawn Owensby</u>, whose mailing address is <u>79 S. Ardmore Avenue, Dayton, Ohio 45417</u>, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>79 S. Ardmore Avenue, Dayton, Ohio</u>, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- For purposes of providing note under this Agreement, the contact person for the Owner is
   —, phone number \_\_\_\_\_\_. The contact person for HAR is Brad White,
  phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
- Owner agrees that they will not take, or cause to be taken, any action, which would interfere with or adversely affect the environmental testing, recovery and/or treatment system or activities on this Property pursuant to this agreement.
- HAR, by entering into this Agreement, assumes no obligation to the Owner to implement and/or continue the activities described in this Agreement.
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- 11. This Agreement is intended to be and shall be construed as a grant of temporary right of access and not an interest in the Property.

- 12. The results of testing performed at the house will be provided to the Owner as soon as possible. Results will also be shared with environmental agencies such as the Ohio EPA, Ohio Department Health and other government agencies as appropriate. Owner agrees that HAR and its representatives may contact Owner's tenant to coordinate sampling.
- 13. Any decision by HAR to terminate the treatment system shall be made in consultation with Ohio EPA, which is the lead regulatory agency. Owner agrees to grant access to Ohio EPA pursuant to paragraph 1 for the purpose of monitoring HAR's compliance with an Operation and Maintenance Agreement.
- 14. This Agreement is governed by Ohio law.
- 15. This Agreement shall be effective on the first date it is fully executed and expires whenever the environmental testing, recovery and/or treatment system is no longer required as determined by the Ohio EPA or HAR.
- If this Agreement is executed in duplicate, both are deemed originals.
- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

OWNER	
Name (S	ignature and Print)
Date	
HOME	AVENUE REDEVELOPMENT, LLC
Name (	Signature and Print)
Title	
Date	

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at 113 S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
- Ownership of any recovery and/or treatment system shall vest with the Owner of the Property upon installation. HAR shall not retain any ownership rights of the recovery and treatment system.
- Prior to installing any environmental testing, recovery and/or treatment system, HAR shall notify and obtain all necessary approvals from public agencies.
- 7. All work by HAR or its contractors or subcontractors pursuant to this Agreement shall be conducted in such a manner as to minimize any disruptions or interference to the Owner and tenant, if applicable. No work shall be undertaken which will materially damage buildings, improvements, equipment, or personal property without prior approval from the owner.
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Name (S	ignature and Print)
Date	
HOME A	AVENUE REDEVELOPMENT, LLC
Name (S	Signature and Print)
Name (S	Signature and Print)

## ATTACHMENT E

Revised Access Agreements

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>55 Bish Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as "Property" at
  reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- For purposes of providing note under this Agreement, the contact person for the Owner is
   \_\_\_\_\_\_, phone number \_\_\_\_\_\_\_. The contact person for HAR is Brad White,
   phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
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Name (Signature and Print)
Date
HOME AVENUE REDEVELOPMENT, LLC
Name (Signature and Print)
Title
Date

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>57 Bish Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as "Property" at
  reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
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Name (	Signature and Print)
Date	
HOME A	AVENUE REDEVELOPMENT, LLC
Name (S	Signature and Print)
Name (\$ Title	Signature and Print)

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  to the Property located at 61 S. Ardmore Avenue, Dayton, Ohio, hereinafter referred to as
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- 17. This Agreement may not be modified or amended except by a written agreement duly executed by the parties hereto or by their respective successors.

Name (Signature and Print)		
Date		
HOME AVENUE REDEVELOPMENT, LLC		
Name (Signature and Print)		
- Title		
Date		

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>63A S. Ardmore Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
  - Installing, operating, maintaining and removing as necessary environmental testing, recovery and treatment systems at the Property.
- For purposes of providing note under this Agreement, the contact person for the Owner is
   \_\_\_\_\_\_, phone number \_\_\_\_\_\_\_. The contact person for HAR is Brad White,
   phone number (614) 793-8777; fax number (614) 793-9070.
- The cost of all environmental testing, recovery and treatment system installation and maintenance, and any related restorative work conducted on this Property shall be borne solely by HAR.
- HAR shall provide Owner with a plan outlining the installation of any recovery and/or treatment systems.
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LLC

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>63B S. Ardmore Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
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Name (Signature and Print)
Date
HOME AVENUE REDEVELOPMENT, LLC
Name (Signature and Print)
Title
Date

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>75 S. Ardmore Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
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Date
HOME AVENUE REDEVELOPMENT, LLC
Name (Signature and Print)
Title
Date

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
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  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
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OWNER	
Name (Signature and Print)	T
Date	
HOME AVENUE REDEVELOPMENT,	LLC
Name (Signature and Print)	
Title	
Date	

This Agreement is made between <u>Freddie Gultney</u>, whose mailing address is <u>3413 Highview Hills Road</u>, <u>Dayton, Ohio 45402</u>, hereinafter referred to as "Owner" and Home Avenue Redevelopment, LLC (HAR) whose mailing address is 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016.

- Owner grants access to HAR, its agents, representatives, contractors, subcontractors and HAR invitees
  to the Property located at <u>113 S. Ardmore Avenue</u>, <u>Dayton</u>, <u>Ohio</u>, hereinafter referred to as
  "Property" at reasonable times and at reasonable notice for the purpose of:
  - a. Inspecting, investigating, documenting and photographing the Property and collecting certain environmental samples inside, on, about, beneath, or adjacent to the Property, including but not limited to, indoor air sampling and sub-slab sampling, in accordance with all applicable laws, rules and/or regulations governing same; and
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OWNER
Name (Signature and Print)
Date
HOME AVENUE REDEVELOPMENT, LLC
Name (Signature and Print)
Title
Date

## ATTACHMENT F

Revised Executive Summary

#### **EXECUTIVE SUMMARY**

Property: Dayton Aviation Heritage Redevelopment Project Property

Alias Property Names: Former GM Delphi Home Avenue Facility

Property Address: 2701 Home Avenue, Dayton, Montgomery County, Ohio 45417

Volunteer(s): Home Avenue Redevelopment LLC, 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016 and City of Dayton, 101 West third Street, Dayton, Ohio 45402

Owner: Home Avenue Redevelopment LLC, 6397 Emerald Parkway, Suite 200, Dublin, Ohio 43016

NFA Letter and Executive Summary Issued by: Laura Funk, VAP Certified Professional #286, Amec Foster Wheeler Environment & Infrastructure, Inc., 521 Byers Road, Suite 204, Miamisburg, Ohio 45342, 937-859-3600

This No Further Action (NFA) letter executive summary serves as both a summary and recording document to meet the requirements of Ohio Revised Code (ORC) 3746.14(A)(1) and Ohio Administrative Code (OAC) 3745-300-13(J) under Ohio's Voluntary Action Program (VAP). Copies of the NFA letter and request for Covenant Not to Sue (CNS) may be obtained by contacting the Ohio EPA – Division of Environmental Response and Revitalization, Central Office Records Management Officer. A legal description of the approximately 54.35-acre property is included in the NFA letter.

#### SECTION 1.0 HISTORY

#### Section 1.1 Property History

The Property was reportedly agricultural land prior to approximately 1910. In 1910, portions of the Property to the east of Abbey Avenue (the "Main Plant") were developed by the Wright Company for the manufacturing of airplanes and airplane components. By 1919, the Main Plant was occupied by the Dayton-Wright Airplane Company, the Standard Foundry Company, and railroad spurs. General Motors began operations on the Property in 1919. General Motors and divisions thereof (e.g. Inland Manufacturing Company) continued the manufacture of airplane and automotive components and eventually expanded to include products for use in appliances, radios, and motorized equipment. By 1950, the Standard Foundry was no longer present on the Property. The southwest corner of the Main Plant was used as a grocery store and pharmacy prior to General Motors occupancy, and the north parking lot of the Main Plant was used as a restaurant and service station prior to General Motors occupancy.

General Motors began to develop the portion of the Property to the west of Abbey Avenue (the "Hill Plant") in 1953. In January 1999, the Delphi Automotive Division separated from General Motors. The company ultimately was renamed the Delphi Corporation. Operations at the Delphi facility reportedly ceased in December 2008. The owner of record at that time was the DPH Holdings Corp. Home Avenue Redevelopment LLC acquired the Property in 2012. The Property is presently vacant.

### Section 1.2 Surrounding Property History

The Property is located in an area that has historically consisted of mixed residential and commercial use. Residential properties have been, and are currently, located to the north and west of the Hill Plant and to the east of the Main Plant. Additional residential properties are located to the south of the Main Plant across Route 35 and Home Avenue. Commercial properties and a school are located to the south of the Hill Plant. Commercial properties are located immediately north of West Third Avenue near the Main Plant. It is assumed that the chemicals of concern (COCs) identified in on-Property soils and/or groundwater are the result of releases from the Property.

#### SECTION 2.0 GENERAL DESCRIPTION OF PROPERTY

### Section 2.1 Phase I Property Assessment and General Information

The NFA Property is located at 2701 Home Avenue, Dayton, Ohio. The 54.35-acre Property is located south of Third Street to the east and west of Abbey Avenue, in Dayton, Montgomery County, Ohio. The Property is prepared for redevelopment and is currently vacant. Surrounding property use is a mix of commercial and residential.

The Phase I Property Assessment was completed for the purpose of satisfying the requirements of OAC 3745-300-06 in anticipation of pursuing a No Further Action (NFA) Letter for the Property. A Phase I Property Assessment report and Phase I Update were completed by Haley and Aldrich, Inc. (Haley & Aldrich) in June 2010 and January 2011, respectively. A VAP Update to Phase I Property Assessment was completed by Hull & Associates, Inc. (Hull) in August 2015. The Certified Professional, Ms. Laura Funk, completed a walkover of the Property on August 4, 2015 which is within 180 days prior to issuance of the NFA letter.

Groundwater in the upper unconsolidated saturated zone is encountered at a depth between approximately 6 and 20 feet below ground surface. Groundwater in the lower unconsolidated saturated zone is encountered at depths between approximately 33 and 42 feet below ground surface. Groundwater flow in the upper saturated zone is to the east-northeast, and flow within the lower saturated zone is to the east-southeast. Bedrock beneath the Hill Plant portion was encountered between depths of 10 and 15 feet below ground surface. The elevation of the bedrock surface decreases to the east. Borings completed in the Main Plant portion of the Property did not encounter bedrock. In the extreme eastern portion of the Property bedrock is at least 70 feet below ground surface. The shaley limestone bedrock is not considered a saturated zone beneath the Property.

Haley & Aldrich initially identified 52 Identified Areas (IAs) in their June 2010 Phase I Property Assessment and January 2011 Phase I Update. The IAs are described in Table 1. Four of the IAs (IA-44, -45, -46, and -48) were later eliminated as described in the *Response to VAP MOA Track Notice of Deficiencies* prepared by Hull in February 2014.

Table 1 - Identified Areas

Identified Area	Description of Area/Source	COCs
IA-01	UST Area A	VOCs, SVOCs and Metals
IA-02	East Coal Pile Area and former Gasoline UST	VOCs, SVOCs and Metals
IA-03	UST Area K, Rail Spur Area, Oil House Area and General Store Area	VOCs, SVOCs, PCBs and Metals
IA-04	East UST Soil Pile Area	VOCs, SVOCs and Metals
IA-05	North Scrap Yard Area, Maintenance Building Area, Ash drop System Area and North Rail Lines and Easement Area	VOCs, SVOCs, PCBs and
IA-06	Former Standard Foundry Area and 1950 Factory Buildings Area	VOCs, SVOCs and Metals
IA-07	Building 20 Historical Tanks Area, Foundry Rail Spur Area and Central Scrap Yard Area;	
IA-08	Original Cement House Area	VOCs, SVOCs and Metals
IA-09	Building 1 Area and Coal Power House Repair Room Area	
IA-10	Building 2 Area and Power House Rail Spur Area	VOCs, SVOCs and PCBs
IA-11	Building 3 Area	VOCs and Metals

Table 1 - Identified Areas

	Table 1 – Identified Areas	000
Identified Area	Description of Area/Source	COCs
IA-12	Building 4 Area	VOCs
IA-13	Building 5 Area	VOCs
IA-14	Former Building 6 Area	VOCs and SVOCs
IA-15	Former Drum Storage Area and Hot Pad Dump Area	VOCs, PCBs and Metals
IA-16	Al Anodizing Area, Building 18 Spray Washer Area and Press Pit Area and Building 18 ASTs Area	VOCs, SVOCs, PCBs and Metals
IA-17	Former Garage Area	VOCs and SVOCs
IA-18	Quality Labs Area, Building 13 Tunnel Area, West Test Labs Area	VOCs and SVOCs
IA-19	UST Tank Area E and VP Parking Spot Area	VOCs, SVOCs, TPH
IA-20	Caustic Storage AST Area	VOCs, SVOCs and Metals
IA-21	UST Area C and Main Plant East Building 11 Area	VOCs, SVOCs, TPH
IA-22	South Plating and Presses Area and Fill Beneath Floor Area	VOCs, SVOCs and Metals
IA-23	South C.V. Processes Area	VOCs and Metals
IA-24	Building 11 Basement Area	VOCs, SVOCs and Metals
IA-25	UST Area D and Main Plant Building 11 Southeast Area	VOCs, SVOCs, TPH
IA-26	Wet Paint Spray Booths Area	VOCs, SVOCs, PCBs and Metals
IA-27	Paint Storage and Main Plant Building 11 North Area	VOCs
IA-28	North Plating and Rust Proofing Area	VOCs and Metals
IA-29	Building 11 North Dock Area	VOCs and SVOCs
IA-30	North Coal Yard Area	VOCs, SVOCs and Metals
IA-31	Gasoline Station Area	VOCs
IA-32	Hill Plant Cement House Area	VOCs, SVOCs and Metals
IA-33	Cement House USTs Area	VOCs, SVOCs and Metals
IA-34	Hill Plant Soil Pile Area	VOCs, SVOCs and Metals
IA-35	Former Above Ground Tank Farm Area	VOCs
IA-36	Building 25A Area	VOCs, SVOCs and Metals
IA-37	UST Area H and Hill Plant Building 25A Southwest Area	VOCs, SVOCs, TPH
IA-38	UST Area I and Hill Plant Building 25A West Area	VOCs, SVOCs and Metals
IA-39	Water Layer Pit Area	VOCs, SVOCs and Metals
IA-40	Weather Stripping Rooms Area	VOCs, SVOCs, PCBs and Metals
IA-41	Flow Coater Area	VOCs, SVOCs and Metals
IA-42	Solvent Abatement Process Area	VOCs, SVOCs and Metals
IA-43	Waste Water Treatment Plant Hot Dock Area	
IA-44	Central Dip Tanks Above Ground Area	NA – Further Evaluation Indicated No Pathway to Site Media

Table 1 - Identified Areas

Identified Area	Description of Area/Source	COCs
IA-45	Mobile Parts Washer Area	NA – Further Evaluation Indicated No Pathway to Site Media
IA-46	Cement Mixing Process Area	NA – Further Evaluation Indicated No Pathway to Site Media
IA-47	Elevator Equipment Room Area	VOCs
IA-48	Building 23 Sump Area	NA – Further Evaluation Indicated No Pathway to Site Media
IA-49	Rail Spur ASTs Area	VOCs, SVOCs and Metals
IA-50	South Rail Spur Area	VOCs and SVOCs
IA-51	Stained Soil Area	VOCs
IA-52	Property-wide Groundwater	VOCs and Metals

Notes:

COC - Chemical of Concern

NA - Not applicable

SVOCs - Semi-volatile Organic Compounds

VOCs - Volatile Organic Compounds

IA - Identified Area

PCBs - Polychlorinated biphenyls

TPH - Total Petroleum Hydrocarbons

UST - Underground Storage Tank

#### Section 2.2 Proposed Land Use

Redevelopment plans have not been finalized to date. The Property will be restricted to commercial or industrial land use. The northern portion of the Main Plant is currently proposed to be part of the National Park Service Dayton Aviation Heritage Museum.

#### Section 2.3 Asbestos Survey and Abatement

Central Insulation Systems, Inc. (CIS) of Cincinnati, Ohio was contracted to remove all regulated asbestos-containing material (RACM) from the on-Property buildings prior to their demolition. The asbestos-containing material (ACM) removal began in February 2013 and was completed in April 2014. According to CIS's closeout documentation the following ACM was removed from the structures on the Property:

- 22,163 bags of asbestos containing pipe insulation;
- 2,574 bundles of asbestos containing pipe sections;
- 1,782 bags of asbestos containing duct insulation;
- 6 bags of asbestos containing transite;
- 398 bags of asbestos containing plaster and pipe;
- 2,465 bags of asbestos containing plaster;
- 910 bags of asbestos containing pipe insulation and duct insulation:
- 2,373 bags of asbestos containing boiler insulation;
- 317 bags of asbestos containing transite and pipe insulation; and
- · 90 cubic yards of asbestos containing floor tile

#### Section 2.4 Approvals Obtained Prior to Issuance of NFA Letter

# Section 2.4.1 Urban Setting Designation (USD)

The NFA Property is located in the Westview Project Area USD approved by the director on October 22, 2012. The USD was verified as documented in the August 2015 VAP Update to the Phase I Property Assessment. In accordance with OAC 3745-300-10, the USD was determined to remain valid and protective for the off-property potable use pathway for the NFA Property.

#### Section 2.4.2 Off-Property Pathway Omission after Applying Diligent Efforts

A request to have off-property pathways omitted pursuant to OAC 3745-300-11(D) has not been submitted with regard to the NFA Property.

# Section 2.4.3 Variance or Case-by-Case Determination

No variance or case-by-case determination pursuant to OAC 3745-300-12 has been requested with regard to the NFA Property.

#### Section 2.5 Phase II Property Assessment

#### Soil:

Each complete exposure pathway for direct contact with soil, and the associated point of compliance; pursuant to OAC 3745-300-07 is listed on Table 2.

Table 2	- Oon Exposure rathw	ays	
Pathway	Suite of COCs for each pathway	Point of Compliance  2-feet below ground surface	
Direct contact to commercial / industrial workers	VOCs, PAHs, TPH, Metals and PCBs		
Direct contact to construction / excavation workers	VOCs, PAHs, TPH, Metals and PCBs	10 feet below ground surface	

Table 2 - Soil Exposure Pathways

A Phase II Property Assessment was conducted by Haley & Aldrich between 2006 and 2011 to evaluate whether applicable standards are met in the IAs and affected media. The Phase II Property Assessment was documented in a report by Haley & Aldrich dated January 2012. The Phase II activities involved the advancement and sampling of over 300 borings. The majority of soil samples were collected at intervals between 0 and 10 feet below ground surface. Additional soil samples were collected at depths approaching 22 feet below ground surface. Subsurface materials observed beneath the Hill Plant consisted primarily of 5 to 15 feet of fill material composed of reworked sand, clay, gravel, slag, cinders and ash. Bedrock was encountered as shallow as 10 feet in some of the borings completed in the Hill Plant. Subsurface materials beneath the Main Plant consisted of fill and sand interbedded with clay. Bedrock was not encountered in any of the borings completed beneath the Main Plant. A boring in the extreme eastern portion of the Property was completed at a depth of 70 feet below ground surface and did not encounter bedrock.

The August 2015 Phase II Addendum prepared by Hull documents that there were 15 separate areas on the Property (designated as excavation areas EA-1 through EA-15 and discussed in Section 4.0) that contained one or more COCs at concentrations exceeding, or contributing to an exceedance of, applicable soil standards. The primary COCs contributing to exceedances in these EAs consisted of:

- Arsenic reported at concentrations of 59.9 milligrams per kilogram (mg/kg) in boring GP-119, 87.2 mg/kg in boring GP-427 and 92.5 mg/kg in boring GP-260;
- Lead maximum concentration of 835 mg/kg in boring GP-553;
- Xylenes reported at concentrations between 620 mg/kg and 1250 mg/kg in borings GP-262, GP-266 GP-434, and GP-454. A maximum concentration of 24,000 mg/kg was reported in a sample from boring GP-568;
- Toluene maximum concentration of 4,420 mg/kg in boring GP-454;
- PCBs maximum concentration of 140 mg/kg in boring GP-110;
- Benzo(a)pyrene reported at concentrations ranging from 5.5 mg/kg to 19.5 mg/kg in borings GP-200, GP-524, GP-526 and GP-535;

- Trichloroethene ranged in concentration from 5.04 mg/kg in boring GP-552 to 48 mg/kg in boring GP-164; and.
- Vinyl chloride reported at a maximum concentration of 17.3 mg/kg in boring GP-552.

#### **Ground water:**

Each groundwater zone beneath the Property and associated response requirements are described on Table 3.

Table 5 - Glound Water Zones						
Ground water zone (depth range)	Suite of COCs in groundwater	Classification	Response requirement / Complete exposure pathway			
Upper unconsolidated saturated zone (6 to 20 feet)	VOCs, SVOCs and metals	Class A within an USD	Meet UPUS at USD boundary or ½ mile from the Property (whichever is greater) and protect on and off-property receptors from vapor intrusion via groundwater to indoor air.			
Lower unconsolidated VOCs Saturated Zone (33 to 42 feet)		Class A within an USD	Meet UPUS at USD boundary or ½ mile from the Property boundary (whichever is greater).			

Table 3 - Ground water zones

The monitoring network used by Haley & Aldrich in their January 2012 Phase II Property Assessment consisted of 32 monitoring wells located across both the eastern and western portions of the Property. Twenty two of the monitoring wells were installed within the upper unconsolidated saturated zone. The remaining 10 wells were installed within the lower unconsolidated saturated zone. The shaley limestone which underlies the unconsolidated deposits is not considered to be a water bearing unit (Schmidt, 1986) in the vicinity of the Property. Therefore, no monitoring wells were installed in the bedrock underlying the Property.

Groundwater samples were collected during a minimum of two separate events at each well in the VAP monitoring network from June 2011 through October 2011. The collection dates, although compressed into a 5-month span, represent samples from the second, third and fourth quarters of that calendar year. Haley & Aldrich also collected groundwater samples from monitoring wells MW-120 through MW-129 which were installed and sampled in 2012 to assess three former UST systems.

Only the upper unconsolidated saturated zone is present beneath the Hill Plant of the Property due to the relatively shallow depth to bedrock. Groundwater samples collected in 2011 contained metals (arsenic and cadmium) and SVOCs at concentrations exceeding UPUS. Arsenic was reported at a maximum concentration of 23.1 micrograms per liter ( $\mu$ g/L) in a sample from monitoring well DIW-109. Cadmium was reported at a maximum concentration of 8.2  $\mu$ g/L in a sample from monitoring well DGW-106. Bis(2-ethylhexyl)phthalate, bis(2-chloroethyl)ether and naphthalene were reported at concentrations of 13.9  $\mu$ g/L, 0.38  $\mu$ g/L, and 3  $\mu$ g/L, respectively.

Both unconsolidated saturated zones are present beneath the Main Plant of the Property. COCs exceeding UPUS in the upper unconsolidated saturated zone included lead (22  $\mu$ g/L) and bis(2-ethylhexyl)phthalate (40  $\mu$ g/L) in monitoring wells DDW-121 and MW-12S, respectively. Several VOCs including chloroform (maximum concentration 370  $\mu$ g/L in DBW-118), trichloroethene (maximum concentration 30  $\mu$ g/L in DBW-120), tetrachloroethene (maximum concentration 210  $\mu$ g/L in DAW-116) and vinyl chloride (maximum concentration 4.4  $\mu$ g/L in DBW-119) were also reported in excess of UPUS in groundwater samples collected in 2011.

VOCs were the only COCs reported at concentrations above UPUS in the lower saturated zone. Trichloroethene was reported at a maximum concentration of 9.3  $\mu$ g/L in monitoring well MW-12D. Vinyl chloride was reported at a maximum concentration of 4.8  $\mu$ g/L in monitoring well MW-5D and

tetrachloroethene was reported at a maximum concentration of 5.6  $\mu$ g/L in monitoring well DAW-117. Chloroform was reported as a maximum concentration of 94  $\mu$ g/L in monitoring well MW-129.

## **Surface Water and Sediments:**

There are no surface water bodies or sediments on, or within the immediate vicinity of, the Property.

#### Soil Gas / Indoor Air:

Off-Property

Sub-slab depressurization systems (SSDS) were installed in ten off-Property structures that contain 13 residences in the course of activities conducted by Delphi Corporation under an Administrative Order of Consent with the U.S. Environmental Protection Agency. Since 2008 an annual inspection and sub-slab vapor and indoor air sampling program has been implemented for the occupied off-Property residences that are equipped with SSDS. The inspections and sampling have been conducted by Hull personnel since Home Avenue Redevelopment LLC acquired the Property. Sub-slab soil gas and indoor air sampling is conducted for a subset of the operational systems annually for chloroform, trichloroethene and tetrachloroethene. Annual sampling results indicate the sub-slab depressurization systems (SSDS) are functioning properly, and there are no COC concentrations in recent indoor air samples exceeding applicable criteria contained in the Operation and Maintenance Plan.

In January 2015, Hull collected soil gas samples from several probes installed by Haley & Aldrich in close proximity to the residences with remedial systems to document more current VOC concentrations in the soil gas. Ohio EPA conducted further investigation of soil gas concentrations in June 2016. Ohio EPA collected 33 soil gas samples from new and existing soil gas ports located east of the Main Plant. Trichloroethene, tetrachloroethene, and chloroform were identified at concentrations exceeding screening levels. The soil gas data was used to delineate an off-Property area of concern for the vapor intrusion to indoor air pathway. Each property within the area of concern was evaluated to determine if it contained an occupied structure. The evaluation identified three potentially occupied residences that were not equipped with SSDS. Ohio EPA was granted access to two of the residences and conducted sub-slab soil gas and indoor air sampling in August 2016. The data did not indicate a need for a SSDS for either of the two residences that were sampled.

**On-Property** 

In August 2011, Haley & Aldrich collected soil gas grab samples from 20 vapor probes installed at depths of approximately 15 feet below ground surface. VOCs were identified at concentrations exceeding screening levels. To further evaluate potential vapor intrusion risk, sub-slab vapor samples were collected by Hull in January 2015 from five monitoring points installed beneath Buildings 1 through 5, which are the buildings proposed to be preserved as part of the Dayton Aviation Heritage museum. The 2015 samples were collected for analysis of VOCs over an approximate 8-hour time frame. Mercury samples were collected over an approximate 3-hour time period immediately after the VOC samples were collected. None of the COCs reported in the sub-slab soil gas samples were present at concentrations that would contribute to an exceedance of applicable standards for indoor air.

**Pathways:** Complete exposure pathways include inhalation of volatile emissions from soil and/or groundwater to indoor air by on-Property and off-Property commercial/industrial workers and off-Property residents.

Point of Compliance: Indoor Air

Table 4 - Soil Gas / Indoor Air Monitoring

Suite of COCs assessed	Type of sample		
VOCs and mercury	Exterior and sub-slab soil gas on-Property		
VOCs (TCE, PCE and chloroform)	Exterior and sub-slab soil gas and indoor air off- Property		

## Section 2.6 Background Evaluation and Findings

Background evaluations were not completed in support of the voluntary action for the Property.

# SECTION 3.0 SUMMARY OF DATA COLLECTION AND EVALUATIONS

# Section 3.1 Summary of Receptors and Pathways On and Off Property

Table 5 describes current and reasonably anticipated complete exposure pathways on and off the NFA Property to COCs originating from the Property.

Table 5 Summary of Receptors and Pathways

Receptor / Pathway	On or off property	Current or reasonably anticipated?
Commercial/Industrial Worker – direct contact with surface soils	On-Property	Property is currently vacant. Reasonably anticipated upon redevelopment. COCs contributing to the pathway were remediated to applicable standards.
Commercial/Industrial Worker – inhalation of particulate and volatile emissions from surface and subsurface soils	On-Property	Property is currently vacant. Reasonably anticipated upon redevelopment. COCs contributing to the pathway were remediated. An Activity and Use Limitation will be used to limit building occupancy in certain areas of the Property.
Commercial/Industrial Worker – inhalation of volatile emissions from groundwater to indoor air	On-Property	Property is currently vacant. Reasonably anticipated upon redevelopment. Determined to present no unacceptable risk in the existing contiguous buildings (Building 1 through 5 and 17). An Activity and Use Limitation will be used to limit building occupancy in certain other areas of the Property.

Table 5 Summary of Receptors and Pathways

Receptor / Pathway	On or off property	Current or reasonably anticipated?
Commercial/Industrial Workers – inhalation of volatile emissions from groundwater to indoor air	Off-Property	Potentially complete if a building were to be constructed in the off-Property area of concern. Mitigated through implementation of an occupancy review and response process as described in the Operation and Maintenance Plan.
Construction/Excavation Workers – direct contact with surface and subsurface soils	On-Property	Property is currently vacant. Reasonably anticipated during redevelopment. COCs contributing to the pathway were remediated to applicable standards.
Construction/Excavation Workers – inhalation of particulate and volatile emissions from surface and subsurface soils	On-Property	Property is currently vacant. Reasonably anticipated during redevelopment. COCs contributing to the pathway were remediated to applicable standards.
Construction/Excavation Workers – direct contact with and inhalation of volatile emissions from groundwater.	On-Property	Property is currently vacant. Reasonably anticipated during redevelopment. COCs contributing to the pathway were remediated to applicable standards.
Residential Receptors – inhalation of volatile emissions from groundwater to indoor air	Off-Property	Mitigated by operation and maintenance of sub-slab depressurization systems at select locations to the north and east of EU-1 and EU-1A and implementation of an occupancy review and response process as described in the Operation and Maintenance Plan.  Areas north and south of EU-2 determined to present no unacceptable risk.

# Section 3.2 Models used

Table 6 describes the model used in support of the voluntary action.

Table 6 - Models

Model	Pathway Evaluated				
BIOCHLOR, Version 2.2 (2000)	Potable use at USD boundary or ½ mile from Property boundary				
BIOSCREEN, Version 1.4 (1997)	Potable use at USD boundary or ½ mile from Property boundary				

The BIOCHLOR and BIOSCREEN modeling, in conjunction with the source removal completed during remediation of the Property, was used to demonstrate that COCs (TCE, PCE and chloroform) observed in the groundwater of the upper saturated zone at the down-gradient Property boundary will not migrate to the USD boundary at concentrations exceeding the generic or risk-derived UPUS. Site-specific information including hydraulic conductivity (4.90E-03 cm/sec) measured in on-Property monitoring wells, hydraulic gradient (0.0213), estimated effective porosity (0.25) based on predominant soil type, maximum COC concentrations, etc. were used as inputs in the models. Other input parameters, such as dispersivity, Koc, soil bulk density, COC half-life were default parameters within the model.

#### Section 3.3 Human Health Risk Assessment

The 2012 Haley & Aldrich Phase II indicated that the Property did not comply with applicable standards for potential receptor populations without remediation. The Haley & Aldrich Phase II was conducted in accordance with the VAP rules effective March 1, 2009. The risk evaluation was revised by Hull as described below, based upon the revised standards and risk assessment procedures in the VAP rules effective August 1, 2014. The results of the Phase II (Haley & Aldrich, 2012) were used to define the excavation areas EA-1 through EA-15 (refer to Section 4.0 below) which were remediated beginning in June 2014.

Remedial activities have been implemented at the Property. A post-remedial Property-specific risk assessment (PRPSRA) was completed by Hull and evaluated the hazard and risk posed to receptor populations by exposures to residual COC concentrations in each of five separate exposure units, based upon completion of the remedy in accordance with OAC 3745-300-09, effective August 1, 2014. The exposure units were defined as follows:

- Exposure unit EU-1 is east of Abbey Avenue and north of the rail spurs. EU-1 includes Identified Areas IA-01 through IA-03, IA-05 through IA-14, portions of IA-18, and IA-19 through IA-31;
- Exposure unit EU-1A is east of Abbey Avenue and south of the rail spurs. EU-1A includes Identified Areas IA-04, IA-15 through IA-17 and portions of IA-18;
- Exposure unit EU-2 is west of Abbey Avenue and south of Maywood Avenue and EU-2B. EU-2 includes Identified Areas IA-32 through IA-51;
- Exposure unit EU-2A includes two parking areas located north of Maywood Avenue on the east and west sides of Upper Avenue. There were no Identified Areas located in exposure unit EU-2A;
- Exposure unit EU-2B is north of Exposure Unit 2, west of Abbey Avenue, and east of Ventura Avenue.
   There were no Identified Areas located in exposure unit EU-2B.

The PRPSRA consisted of an evaluation of receptor populations for commercial/industrial land uses, including construction/excavation activities. The PRPSRA included an evaluation of compliance with applicable standards, considering cumulative hazard and risk to each receptor population within each exposure unit at the Property. The PRPSRA was based on the evaluation of soils, soil gas, indoor ambient air and groundwater underlying the Property under current conditions following the completion of soil removal and the establishment of other remedial activities (i.e., institutional controls and engineering controls).

The intended future use of the Property is commercial/industrial land use. The PRPSRA showed that following completion of the remedial activities, the Property complies with applicable standards under the Ohio VAP for a commercial/industrial land use (including direct contact soil standards for

commercial/industrial land use within the 2-foot POC and construction/excavation activities within the 10-foot POC based upon not exceeding a target risk of 1E-5 and hazard of 1 for each of the Exposure Units), based upon the completion of the following activities:

#### Institutional Controls:

- The establishment of an institutional control that restricts the Property to commercial or industrial land uses as defined in OAC 3745-300-08(C)(2)(b)(and (C)(2)(c), respectively, with a 2-foot point of compliance for direct contact soils.
- The establishment of an institutional control that prohibits the extraction and use
  of groundwater at the Property, in accordance with OAC 3745-300-11(C)(3).
- Implementation of an institutional control that restricts occupancy of buildings constructed at exposure units EU-1 and EU-2 on the Property, excepting the existing contiguous building (Buildings 1 through 5 and 17) until such time that either: (i) a remedy that eliminates potential indoor air vapor intrusion exposure to hazardous substances in excess of applicable standards is installed, operated and maintained as an engineering control under an operation and maintenance agreement and an operation and maintenance plan or (ii) the Certified Professional demonstrates through additional Property-specific analysis that, based on building design and location, the Property complies with applicable standards for the vapor intrusion to indoor air exposure pathway without further implementation of remedial activity. Based upon the results of the PRPSRA, this restriction does not apply to any building that may be constructed at exposure units EU-1A, EU-2A or EU-2B at the Property.

#### **Engineering Controls:**

- Maintain engineering controls (i.e. sub-slab depressurization systems) installed in off-Site residences through implementation of an Operation and Maintenance Plan (Hull March 2017), or approved updates thereof, mitigating exposure of volatile emissions to indoor air for the Off-Property receptor population to the east of exposure units EU-1 and EU-1A.
- Implementation of an occupancy review and response process whereby quarterly review of water usage records is conducted for certain off-Property residences and quarterly review of construction permits is conducted for certain off-Property vacant land. Response activities are required if occupancy or construction for occupancy is indicated by the quarterly reviews.
- Implementation of a process to gain control within the off-property area of concern, including pursuit of acquisition by City of Dayton of tax delinquent properties within the area of concern that meet certain eligibility criteria, placing existing residences on said acquired properties into the nuisance abatement queue for future demolition, requiring vapor intrusion evaluation and/or mitigation (if necessary) be conducted prior to occupancy of new structures on said acquired properties, and tagging cards maintained by the City of Dayton for properties within the off-property area of concern with a notation that environmental conditions may warrant further evaluation with respect to potential for vapor intrusion.

#### Section 3.4 Ecological Risk Assessment

There are no important ecological receptors on the Property or adjoining properties. Therefore, an ecological risk assessment was not required.

#### Section 3.5 Protection of Ground Water Demonstration

Contamination in the upper and lower unconsolidated saturated zones is attributable to on-Property sources. COCs were detected in multiple on-Property monitoring wells at concentrations exceeding UPUS, including VOCs (upper and lower unconsolidated units), SVOCs (upper unconsolidated unit), and metals (upper unconsolidated unit). Due to the presence of multiple COCs above UPUS, the provisions for the protection of groundwater meeting UPUS do not apply to the upper and lower unconsolidated saturated zones. Shaley limestone bedrock beneath these zones is not a water bearing unit (Schmidt, 1986).

# SECTION 4.0 SUMMARY OF REMEDIAL ACTIVITIES IMPLEMENTED AND HOW THE ACTIVITIES COMPLY WITH APPLICABLE STANDARDS

#### Section 4.1 Summary Table

Table 7 summarizes remedial excavation activities implemented on the Property to achieve applicable standards.

Table 7 - Summary of on-Property Remedial Excavation Activities

Identified Area / Exposure Unit	Representative Concentration of COC in Identified Area prio to remediation by media (mg/kg)		n of COCs Area <u>prior</u> ation by ia	Applicable Standard(s) (mg/kg)	Method Used for Deriving Applicable Standard	Method of Achieving Compliance with Applicable Standards or Remedy
Excavation Area EA-1 in Exposure Unit 1	Soil	Arsenic	87	77	Generic Standard	Soil Removal
Excavation Area EA-2 in Exposure Unit 1	Soil	Lead	835	800 and 400	Generic Standards	Soil Removal
Excavation Area EA-3 in Exposure Unit 1	Soil	Xylenes	1200	260	Soil Saturation Value	Soil Removal
Excavation Area EA-4 in Exposure Unit 1	Soil	Xylenes	1250	260	Soil Saturation Value	Soil Removal
Excavation	Soil	PCBs	140	20	Generic standards	Soil Removal
Area EA-5 in Exposure Unit 1A		Mercury	3.9	3.1		
Excavation Area EA-6 in Exposure Unit 1	Soil	Arsenic	92.5	77	Generic Standard	Soil Removal
Excavation Area EA-7 in Exposure Unit 2	Soil	Benzo(a) pyrene	13.3	5.8	Generic Standard	Soil Removal

Table 7 - Summary of on-Property Remedial Excavation Activities

Identified Area / Exposure Unit	Media	Representative Concentration of COCs in Identified Area <u>prior</u> to remediation by media (mg/kg)		Applicable Standard(s) (mg/kg)	Method Used for Deriving Applicable Standard	Method of Achieving Compliance with Applicable Standards or Remedy	
Excavation Area EA-8 in Exposure Unit 2	Soil	Xylenes	24,000	260	Soil Saturation Values	Soil Removal	
Excavation Area EA-9 in Exposure Unit 1	Soil	Arsenic	59.9	77	Generic Standard	Soil Removal	
Excavation Area EA-10 in Exposure Unit 1A	Soil	TCE	48	51 and 17	Generic Standards	Soil Removal	
Excavation Area EA-11 in Exposure Unit 2	Soil	Benzo(a) pyrene	6.29	5.8	Generic Standard	Soil Removal	
Excavation Soil Area EA-12	Soil	Benzo(a) pyrene	19.5	5.8	Generic Standards	Soil Removal	
in Exposure Unit 2		Dibenz(a,h) anthracene	5.52	5.8			
Excavation Area EA-13 in Exposure Unit 2	Soil	Benzo(a) pyrene	5.5	5.8	Generic Standard	Soil Removal	
Excavation	Soil	TCE	5.04	17	Generic Standards	Soil Removal	
Area EA-14 in Exposure Unit 1		Vinyl Chloride	17.3	50 and 280			
Excavation Area EA-15 in Exposure Unit 1	Soil	Xylenes	227	260	Soil Saturation Values	Soil Removal	

Representative concentrations represent the maximum concentration of each COC that was reported in soil samples exceeding the appropriate applicable standards within the corresponding points of compliance.

#### Section 4.2 Summary of Remedial Activities

As discussed in previous sections, demolition and remediation activities were completed on the Property between 2012 and 2014. Prior to demolition of the structures formerly located on the Property, all RACM were abated in accordance with applicable law.

Remedial excavations were completed at depths ranging from 2 to 10 feet below ground surface based on the depth at which soils exceeding one or both of the generic direct contact soil standards

(commercial/industrial and construction worker) were encountered. Confirmatory samples were collected from the sidewalls and base of each excavation to demonstrate that remaining soils did not contain COCs at concentrations exceeding the applicable standards. As noted in Table 7, the COCs determined to exceed applicable standards included metals (arsenic, lead, and mercury); PAHs including benzo(a)pyrene and dibenz(a,h)anthracene; PCBs; and VOCs including trichloroethene, xylenes, and vinyl chloride.

In addition to soil excavation, other active and passive remedies are being relied upon to meet applicable standards. These remedies include institutional controls on the Property, operation and maintenance of sub-slab depressurization systems at off-Property structures, implementation of an off-Property occupancy review and response process, and implementation of a process to gain control within the off-Property area of concern.

Table 8 summaries all remedies being used to demonstrate the Property meets applicable standards.

Table 8 - Summary of All Remedies

Type of Remedy	IA or EU applies to	COCs addressed	Pathway(s) addressed
Soil Excavation	Excavation Areas EA- 1 through EA-15 in Exposure Units 1, 1A and 2	Metals, PAHs, PCBs, and VOCs	Direct contact and vapor intrusion
Subslab depressurization systems subject to operation and maintenance	Off-Property residential structures	VOCs	Vapor intrusion to indoor air
Occupancy review and response process	Off-Property area of concern	VOCs	Vapor intrusion to indoor air
City of Dayton process to gain property control	Off-Property area of concern	VOCs	Vapor intrusion to indoor air
Prohibited use of groundwater in an environmental covenant	Property wide	Metals, SVOCs, VOCs	On property potable and non-potable use of groundwater
Commercial/industrial land use restriction in an environmental covenant	Property wide	Metals and SVOCs	Direct contact with soil by commercial or industrial workers
Activity Use Limitation – No occupancy in buildings (excepting Buildings 1 through 5 and 17) without further evaluation	Exposure Unit 1, Exposure Unit 2	VOCs	Vapor Intrusion to Indoor Air

Delphi Corporation also conducted remedial activities prior to the voluntary action on the Property including operation of a soil vapor extraction system.

# SECTION 5.0 ENGINEERING CONTROLS / OPERATION AND MAINTENANCE PLAN AND AGREEMENT

The engineering controls consist of SSDS installed in a subset of the off-Property residences within the area of concern. The associated Operation and Maintenance Plan and Agreement require on-going maintenance and annual sampling and reporting to the Ohio EPA for occupied structures with SSDS engineering controls. The Operation and Maintenance Plan also requires implementation of a quarterly occupancy review process, which includes a requirement for response activities (e.g., request for access, sampling, mitigation) if occupancy is indicated. The Operation and Maintenance Plan also requires implementation of a process to gain control within the off-property area of concern, including pursuit of acquisition by City of Dayton of tax delinquent properties within the area of concern that meet certain eligibility criteria, placing existing residences on said acquired properties into the nuisance abatement queue for future demolition, requiring vapor intrusion evaluation and/or mitigation (if necessary) be conducted prior to occupancy of new structures on said acquired properties, and tagging cards maintained by the City of Dayton for properties within the off-property area of concern with a notation that environmental conditions may warrant further evaluation with respect to potential for vapor intrusion.

# SECTION 6.0 RISK MITIGATION MEASURES / RISK MITIGATION PLAN (RMP)

No risk mitigation measures were required to demonstrate compliance with applicable standards on the Property.

# SECTION 7.0 ACTIVITY AND USE LIMITATIONS / ENVIRONMENTAL COVENANT

The remedy includes activity and use limitations (also known as use restrictions) described in an environmental covenant. The activity and use limitations when established will limit the property to commercial or industrial land uses and prohibit groundwater extraction and uses. Further, an activity and use limitation to address the vapor intrusion pathway was included to prevent human occupancy of buildings in Exposure Units 1 and 2, excepting the contiguous existing building (Buildings 1 through 5 and 17), without remedy or demonstration that a remedy is not needed.

Operation and Maintenance Agreement for Dayton Aviation Heritage Redevelopment Property (NFA number 16NFA 647)

# ATTACHMENT 3 Financial Assurance



#### Secured Message

From: Susan Appell <Susan.Appell@huntington.com>

To: Vicky Murnane <vmurnane@hullinc.com>

CC: Ashley Postell <Ashley.Postell@huntington.com>

Date: 06/13/2017 11:44:43 AM EDT Subject: RE: New Account Request

Attachments: Scanned from a Xerox Multifunction Printer.pdf

Hello Vicky,

The new account is opened. The account number is 01893435548. I have transferred \$15K from x7244 to the new account. Please see attached the mail screen reflecting the O & M.

Please let me know if you have any questions.

Have a good afternoon!

Susan

Susan Appell

Relationship Service Specialist II | Commercial Banking Office: 614.480.0703 Fax: 888.527.6309

The Huntington National Bank 41 South High Street HC0832 Columbus, OH 43215 huntington.com



# **Brad** White

Vice President

HULL | Mason, Ohio

ALTERNATIVE ENERGY | BROWNFIELDS | ENVIRONMENTAL | SHALE OIL & GAS | WASTE MANAGEMENT p: 513.401.8930 | f: 513.459.9869 | c: 513.939.8244 web | directions to offices